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STUDIES IN THE AMERICAN BUPRESTIDÆ.

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It would seem that but few sections of the Coleoptera have been so neglected, or so superficially investigated with a view to scientifically defining and grouping the genera, as the Buprestidæ. The conspicuous and brilliant metallic coloration prevailing among the species, doubtless led the early authors to define the majority of them from their salient external characters alone, and generally in few words, so that the determinative literature is inadequate and frequently misleading. These remarks apply, however, more especially to the first few groups of genera as they occur in America, for some careful and undoubtedly useful work has been accomplished in subsequent parts of our series, for example in the genera *Chrysobothris*, *Acmaeodera* and *Agrilus* by Dr. G. H. Horn and Mr. H. C. Fall.

Alluding to the neglect during the past fifty years of that part of the family which forms the subject of the present essay, it will suffice to state that only a comparatively small proportion of the specific and subspecific forms in our cabinets have been defined, that the genus *Chalcophora* has been constituted in our lists during all this time of two notably distinct genera, that the three species assigned to *Hippomelas* belong in reality to three different genera, two of which are not at all closely allied, and, finally, that *Buprestis* is separated from the earlier genera by *Dicerca* and *Pæcilonota*, which differ conspicuously in antennal structure as will appear below. This general lack of interest in the taxonomic treatment of the family is apparently due, in some measure at least, to actual absence of structural plasticity, the entire under surface of the body being unusually fixed and con-

stant throughout, so that even Lacordaire, generally so happy in his choice of primary characters, has, seemingly in despair, seized upon a few antennal features for major group division, without testing them with sufficient thoroughness; the result is that the grouping suggested by that author, especially that founded upon variations in the ridge above the antennal foveæ and in the pores and fossæ of the outer antennal joints, is not satisfactory, as indeed remarked by LeConte in his monograph of the family. At the same time the group characters adopted by LeConte are also valueless to a great degree, for it is not apparent that the front is narrowed by antennal insertion to any greater degree in *Chrysobothris* than in *Gyascutus*, and the nature of the meso-metasternal suture, although very important, completely fails as a group character in the sense intended by that author, while the differences in prosternal conformation are too feeble, inconstant and illusory to serve any useful purpose. It is perhaps also due in part to this lack of evident organic structural diversity, that early mistakes in generic assignment were so frequently made by systematists; but it is difficult to comprehend, even under this assumption, the original referring of what we now know as *Gyascutus planicosta* and *obliteratus*, as well as many exotic species, to the genus *Chalcophora*.

It has been impracticable for me to survey the entire family with sufficient thoroughness to definitely pronounce upon primary group division, if there be any worthy of adoption, and the genera here reviewed are therefore arranged in close succession in a single statement and without tribal delimitation. The principal generic characters assumed relate almost wholly to antennal and elytral structure, but, for more closely related genera, diverse characters of the front, pronotum and tarsi have proved to be of more or less utility. There are two sufficiently distinct types of antennal structure among the genera having smoothly anchylosed sterna, and, if found to be of general application in the family at large, there is no reason why they should not form the basis of major group or tribal division. In the first group we might suggest *Hippomelas* and allied genera, having a terminal antennal process, as one tribal group, *Psiloptera*, *Spinthoptera* and probably others now confounded with *Psiloptera*, as another, *Chalcophora* and related forms as a third and *Buprestis* with its immediate allies as still another, and, in the second division, which is probably by far the larger, *Dicerca*, with related genera, should be

considered a special tribe based upon the position of the antennal fossæ and distinguished from others, such as *Chrysobothris*, by the form of the elytral bases, degree of separation of the eyes and other characters. Many genera were unnecessarily rejected by Lacordaire, presumably because of deficiency in structural peculiarities affecting those special organs usually looked to elsewhere, or in diversification of the sclerites of the under surface, overlooking the fact, of which we here have sufficient proof, that our criteria for generic definition should vary to fit the conditions of the particular section of the Coleopterous series that we may have under consideration. In this case elytral and antennal structure become of paramount importance from the generic viewpoint, although in many other sections of the order they may be wholly unimportant.

Messrs. Warren Knaus, H. F. Wickham and Chas. W. Leng have generously permitted me to acquire duplicate material from their collections, and this, together with a considerable series in my own cabinet collected by Dunn, Levette and others, gives me a very fair representation of the species. I also have to thank Mr. Champion for a transcription of Ollivier's diagnosis of *Buprestis viridula*. In order to study the laws of intraspecific variation I obtained extensive series collected by Mr. A. H. Manee, at Southern Pines, North Carolina, consisting of about sixty-five specimens of *Buprestis ornata* and some twenty-five examples each of *B. apricans* and *Dicerca obscura*. These have been of some utility in several efforts to decide whether or not two closely allied uniques might represent different species, for the laws of variation applying to a few species are very apt to apply to all those in the same group of genera. The secondary sexual characters at the apex of the abdomen are remarkably inconstant within rather broad limits and cannot be employed, as a rule, in defining allied species, and punctuation and general sculpture are also variable in some parts of the series to a rather unusual degree; but the formation of the elytral apices is usually rather constant. So it required a large amount of study to become sufficiently familiar with the subject to attempt the definite separation of specific and subspecific forms. Probably I have made some mistakes which future knowledge will rectify.¹

¹This paper is the gradual outgrowth of an original intention on the part of the writer, to describe, merely in an isolated manner, a few species of *Gyascutus*.

The genera here considered may be defined as follows:—

- Mesosternum and metasternum anchylosed, the suture obsolete or very fine 2
- Mesosternum separated from the metasternum by a distinct cleft 14
- 2—Outer antennal joints more or less obliquely truncate beneath, always more rapidly or abruptly narrowed basally, and usually with sensitive setigerous pores in addition to the fossæ, the latter in a few cases wholly obsolete. 3
- Outer antennal joints enlarged within apically, or more typically serriform, not more rapidly or abruptly narrowed basally, usually without aggregated sensitive pores but always having an intero-terminal sensory fossa; antennæ shorter and more compact as a rule 10
- 3—Last antennal joint with a terminal process, wanting apparently only in the male of *Hippomelas*; sensory fossæ terminal, diversely developed and sometimes obsolete; pronotum never sulcate. Sonoran faunal regions. 4
- Last antennal joint without trace of terminal process in either sex 6
- 4—Last antennal joint of the male without evident terminal process; body moderately stout to narrow and subcuneate, convex, more feebly and evenly sculptured, the sides of the prothorax more evenly converging from base to apex and frequently nearly straight; tarsi variable. [Type *Buprestis saginata* Mann.]. **Hippomelas**
- Last antennal joint having a distinct terminal process in both sexes; sculpture of the integuments deeper and more irregular 5
- 5—Pronotum with the basal bead never entire but always interrupted medially, where it joins the raised median smooth line; tarsi more slender and elongate, the basal joint of the posterior almost always longer than the next two combined; sculpture moderately diversified. [Type *Chalcophora planicosta* Lec.]. **Gyaseutus**
- Pronotum with the basal bead strong, even and entire, not obliterated at the middle; tarsi shorter and thicker as a rule though variable, the basal joint of the posterior not as long as the next two combined; sculpture rough though more uniform, that of the pronotum almost as in *Spinthoptera*. [Type *Chalcophora calata* Lec.]. **Stictocera**
- 6—Outer antennal joints with lateral as well as apical sensory fossæ. Body more or less parallel, the apical part of the elytra regularly ogival as a rule and narrowly truncate and bispinulose at the apices; pronotum wholly devoid of basal beading, not sulcate though sometimes in part feebly, longitudinally impressed medially; elytra with impressed series of coarse punctures, and, in addition, scattered finely punctulate and puberulent shallow areolæ, which are usually bright metallic in coloration; prosternum bisulcate, transversely truncate anteriorly; basal segment of the abdomen feebly flattened to deeply sulcate; tarsi thick, the first joint of the posterior but little longer than the second. Sonoran and Neotropical regions. [Type *Psiloptera valens* Lec.].
Spinthoptera

- Outer antennal joints with the sensory fossæ single and intero-terminal, very rarely obsolete. 7
- 7—Elytra very irregularly sculptured; pronotum always sulcate; epistoma unusually narrowly and deeply emarginate. 8
- Elytra with regular sculpture, never having the large, uneven and interrupting depressions of the preceding group; pronotum generally without a median sulcus though sometimes impressed along the median line; epistoma more broadly and feebly sinuate as usual; legs slender. Holarctic faunal region. 9
- 8—Pronotum bisulcate, the median line more or less evidently costuliform; elytra with deep irregular depressions, the side margins never more than feebly serrulate posteriorly, the apex generally obtusely angulate; antennæ with the setigerous pores scattered and perforate, the sensory fossa obsolete; labrum corneous; mentum very transverse, truncate, wholly corneous; prosternum bisulcate. Holarctic regions. [Type *Buprestis mariana* Linn.]. **Chaleophora**
- Pronotum unisulcate; antennæ rather thick, the outer joints with close-set impressed setigerous pores and with well developed intero-apical sensory fossæ, the latter irregular in form; labrum coriaceous; mentum less transverse, trapezoidal, corneous in more than basal half, the apical part coriaceous; elytra irregularly punctured, very unevenly costulate and with very large and shallow interrupting areolæ, the lateral edges strongly serrate posteriorly, the apex not truncate; prosternum and first ventral impressed along the median line. Nearctic regions. [Type *Buprestis campestris* Say]. **Texania**
- 9—Scutellum large, the remaining characters nearly as in *Buprestis*, the elytra regularly striate. Europe. [Type *Buprestis austriaca* Linn.].
* **Eurythyrea**
- Scutellum small; elytra striate; labrum generally wholly coriaceous and pale in color but becoming corneous and metallic basally in some aberrant species; elytral apices rounded or truncate, sometimes bispinulose, the sides not serrulate posteriorly; prosternum convex or flattened along the middle; first ventral convex to deeply sulcate; basal joint of the hind tarsi more or less considerably elongate. Holarctic regions. [Type *B. octoguttata* Linn.]. **Buprestis**
- Elytra not striate but regularly costate, with densely cribrate and broadly concave intervalles, without trace of serial punctures; labrum always corneous and metallic basally; prosternum impressed and punctured along the middle; elytra rounded or truncate at tip. Nearctic regions. [Type *Ancylocheira lauta* Lec.]. **Cypriacis**
- Elytra densely and subevenly cribrate, without striæ, but having regular series of large perforate punctures; remaining characters nearly as in *Cypriacis*. Atlantic Nearctic regions. [Type *Buprestis decora* Fabr.]. **Stereosa**
- 10—Hind coxæ strongly dilated within as usual, their hind margin thence strongly oblique to the sides; antennal fossæ antero-internal, small and

- rounded; eyes with their inner margins oblique as usual; tarsi longer; body not cuneiform. 11
- Hind coxæ but slightly dilated within, their posterior edge thence transverse to the sides of the body; eyes parallel within; antero-terminal fossæ of the outer antennal joints large and irregular, the joints also with a small lateral fossa in addition; body subcuneate in form. 13
- 11—Pronotum more closely punctate or depressed along the median line; elytra roughly sculptured, more or less prolonged at tip, not or scarcely serrate at the sides posteriorly; antennæ inserted in larger depressions under more or less pronounced oblique elevations of the front. Holarctic regions. [Type *Buprestis ænea* Linn.] **Dicerea**
- Pronotum subelevated and impunctate along the median line; elytra less roughly sculptured and usually with more distinct striation. 12
- 12—Antennæ inserted under oblique prominences somewhat as in *Dicerca*; elytra more or less feebly produced at tip, not or scarcely serrulate at the sides, the apices truncate or sinuate and generally bispinulose; surface with sombre coloration. Holarctic regions. [Type *Buprestis variolosa* Payk.] **Pœcilonota**
- Antennæ inserted in exposed foramina, the supra-antennal ridges obsolete; elytra not produced at tip, feebly serrulate at the sides posteriorly, the apices more or less truncate and multispiculose; integuments with vivid metallic coloration. Europe. [Type *Buprestis festiva* Linn.]. ***Lampra**
- 13—Antennæ inserted in small frontal foramina, very short and compact; pronotum feebly impressed medially toward base, otherwise almost evenly convex; scutellum small; elytra subevenly cribrate and with very faint subconvex smoother lines, the sides serrate posteriorly and at the narrowly rounded apex, which is not at all produced; tarsi very short. Sonoran regions. [Type *Halecia gentilis* Horn]. **Anataxis**
- 14—Scutellum small as usual but distinct and normal. 15
- Scutellum obsolete; elytra without striation 16
- 15—Antennæ inserted in small foramina under very small, feeble and inconspicuous ridges, short, compact, the joints nearly as in *Dicerca* but more convex and with dense sensitive pores beneath, the sensory fossæ intero-terminal, distinct and circular, the last joint with a strong terminal process as in *Gyascutus*; body small, subcylindric, the eyes widely separated, with their inner margins but slightly converging upward; prothorax subparallel and broadly rounded at the sides, faintly impressed along a part of the median line; legs slender; tarsi short; hind coxæ dilated internally as usual; first ventral suture distinct, rectilinear throughout; elytra feebly serrulate at the sides and finely striato-punctate. California. [Type *N. cupreofusca* n. sp.] **Nanularia**
- Antennæ inserted in very small and widely separated foramina, which have their upper edges horizontally acute but not ridged, very slender, the outer joints elongate and much as in *Buprestis*, sparsely punctate, more closely and subrugulose beneath, with very small rounded intero-

terminal sensory fossa; labrum well developed, sinuato-truncate; epistoma unusually deeply and not broadly emarginate; body small, slender; eyes with the inner margins distinctly converging upward as usual; prothorax feebly trapezoidal with nearly straight sides, trisulcate; elytra without trace of serrulation at the sides, sinuate and bi-denticulate at the apices, obscurely and imperfectly striate and with uneven and undefined subimpressed areolæ; prosternum not sulcate; first ventral convex, the first suture fine but distinct, straight; legs long and very slender. Atlantic regions. [Type *Buprestis elongata* Lap.-Gory]. **Cinyra**

- 16—Antennæ inserted in small exposed foramina, not within a cavity and without superior ridge though having a small polished and sculptureless spot adjoining each above and becoming more prominent along the upper margin of the foramina, their outer joints strongly serrate and triangular, with their lower margins very oblique and more converging basally, having dense asperate sensitive pores beneath anteriorly and a large intero-apical sensory fossa, the last joint narrow and elongate-oval; eyes widely separated, their inner margins slightly converging upward; epistomal margin narrowly, deeply sinuate medially; labrum as in *Cypriacis*, coriaceous but having basally two large dense and metallic areas which are very narrowly separated medially; maxillary palpi very slender; mentum sinuate at apex, corneous and densely cribrate; pronotum uneven, with a short compressed and prominent ridge at each side behind the middle of the lateral margin and a small deep cavity before the middle of the base; scutellum wholly obsolete; elytra oblong, wider than the prothorax, cribrate, without trace of striæ and very uneven, scarcely at all serrulate at the sides, the tips obtuse, rounded; prosternum densely sculptured throughout, not impressed, the abruptly narrowed apex not attaining the metasternum, the side pieces of the mesosternum separated, however, by a deep cleft; basal segment of the abdomen apparently free or nearly so, the first suture similar to the others and rectilinear; legs slender, the basal joint of the hind tarsi greatly elongated; hind coxæ strongly oblique as usual. Pacific coast to Gulf of Mexico. [Type *T. blondeli* Mars.]. **Trachykele**

The usual position of *Dicerca*, interpolated between *Hippomelas* and *Buprestis*, dates apparently from the work of Lacordaire, who drew attention to the similarity in antennal insertion and form of the supra-antennal ridges to those of *Psiloptera*; but the marked dissimilarity of the antennæ themselves seems to the writer a far more important consideration and necessitates the removal of *Dicerca* and *Pæcilonota* from the vicinity of *Hippomelas*, *Psiloptera* and *Buprestis*, to a closer association with *Chrysobothris*. The European *Eurythyrea* Sol., and *Lampra* Spin., are introduced above for comparison and greater completeness; they are distinguished by the prefixed asterisk. There can be but little question that *Lampra* ought to be considered a genus dis-

tinct from *Pæcilonota* and not a subgenus. *Anataxis*, proposed for *Halecia gentilis*, is not closely related to *Dicerca* or *Pæcilonota*, but I can imagine no better place for it than that assigned in the table. It was placed in *Agæocera*, by Waterhouse, but on examining the figure given by Laporte and Gory for *Anthaxia gigas*, the type of *Agæocera*, I cannot perceive the least serration of the sides of the elytra and, besides, the pronotal and elytral structure is so different that I venture to propose for *gentilis* a separate genus. This species is entered twice in the Kerremans Catalogue, once under *Agæocera* and again under *Halecia*. The genus *Trachykele*, of Marseul, is very aberrant, not only in general facies and absence of scutellum, but in the virtually free basal segment of the abdomen. It is quite probable that *Buprestis lecontei* Lap.-Gory, constitutes a genus different from that founded upon such species as *blondeli* and *opulenta*.

The delimitation of species in this group of genera, and indeed throughout the Buprestidæ, is rather more difficult and uncertain than usual, because of erratic variation in many of the elements generally relied upon for the definition of species. Kerremans alludes to this in the introduction to his general catalogue of the family, and intimates that there may possibly be no such reality in nature as species or genera, or even higher groups, and that it may be all a matter of individual opinion. The expression, "opinionative species," is frequently employed in alluding to those which are maintained or reduced from time to time through the idiosyncrasies of writers, though rather meaningless after all, because of the impracticability of standardizing human intelligence; but, on the strength of his expressed doubts and apprehensions, the author quoted has had recourse to a wholesale system of "lumping," which appears to me not fully justified. Because of deficiency in material I have not always been able to make up my mind definitely as to species, having had to rely more on general habitus than anything else in a number of cases. Those forms which are consequently to some extent doubtful to me as species are inscribed as subspecies in the various tables, but, because of the undesirability of trinomials, these subspecies should be quoted under two names only when referred to verbally or in text; they would not have been named at all if there were not a very strong probability of true specific value in every case. In some parts of the series I have united and separated forms many times before coming to a

conclusion, final as far as apparently permissible from the incomplete material at hand. Kirby's species were all collected from three to ten hundred miles north of our northern boundaries and some of them are unquestionably different from our own; the attempt to force some of our forms to bear the Kirbyan names has given rise to several mistakes. The *Buprestis viridula*, of Ollivier, described from Carolina, is a Philippine species of *Diceromorpha*. *Gyascutus californicus*, of Horn, is assumed to form part of the genus *Nanularia*, though in that species the last antennal joint is specially described as obtuse at apex, so that this reference is somewhat hypothetical. If *californicus* is not assignable to *Nanularia*, however, I can suggest no other place for it, as, apparently, it can be neither a *Gyascutus* nor a *Hippomelas*.

Hippomelas Lap.-Gory.

The species of this genus are more elongate and subcylindric as a rule than in *Gyascutus* and *Stictocera*, and of much smoother and more feebly sculptured surface; they, however, occasionally become rather stout in form, as in the type, which was named *saginitus* by Mannerheim; this species is not represented in my collection at present. The coloration is usually black and frequently without trace of metallic lustre, but is occasionally bright and metallic, particularly in *mexicanus* and related species of southern Mexico, and also in the second subgenus, defined below. The head and eyes are large, the frontal surface roughly sculptured as usual, descending at the sides in a more punctate and pubescent slope or depression to the inner margin of the eyes, the epistoma broadly, feebly sinuate, the antennæ moderately long and compressed, the outer joints with dense sensitive punctures, except above, and having an irregular and somewhat inconstant or vestigial apical sensory fossa near the margin of the articular foramen, and they are inserted under strong oblique frontal ridges. The prosternum is not impressed though feebly flattened, the mesosternum wholly divided, the meso-metasternal suture fine and sometimes barely traceable, the first ventral convex medially and the legs variable subgenerically. There are two subgenera as follows:—

Tarsi shorter and thicker, the basal joint never as long as the two following combined; abdomen with the basal segment shorter, behind the coxæ more or less evidently shorter than the second, the first suture sinuate medially as usual though almost obliterated. Hippomelas

Tarsi longer and more slender, the basal joint fully as long as the next two or longer, as in *Gyascutus*; abdomen with the basal segment a little longer, the first suture similar but better marked. **Prasinalia**

The latter of these subgenera seems to be peculiar to the fauna of Arizona and the adjacent parts of California, where it replaces *Hippomelas*, which is widely diffused from our southern boundaries to southern Mexico.

Hippomelas in sp.

Legs very thick, the tarsi unusually short, the basal joint of the posterior but little longer than the second. Body moderately narrow, convex, subcylindric, cupreous in lustre, the elytra more æneous, the epipleuræ and sides of the under surface becoming greenish; head (♂) much more depressed throughout the frontal surface and vertex than in any other species, feebly concave, hairy, more finely and uniformly sculptured and green from the occiput to the strong antennal ridges; outer antennal joints parallel; prothorax two-fifths wider than long, moderately trapezoidal, the sides straight; apex feebly arcuate except laterally, the base broadly bisinuate; surface moderately strongly, subevenly and sparsely punctate, more closely laterally and with feebly marked and more convex vacant spaces throughout, the lateral margin green; scutellum small, transverse; elytra slightly wider than the prothorax and three and one-half times as long, the sides feebly converging from the humeri to about apical third, thence rounding and with long, very feeble ser- rules to the apices, which are narrowly and deeply emarginate and briefly bidentate; surface even, with barely impressed striæ of fine close punctures, becoming larger and closely confused at the sides; intervals scarcely punctate, somewhat creased; under surface sparsely punctate, polished, bright coppery, the legs and lateral parts unusually pubescent. Length 23.0 mm.; width 7.5 mm. Mexico (Guerrero). ***brevipes** n. sp.

- Legs less thick, the tarsi less abbreviated, the basal joint of the posterior almost as long as the next two combined as a rule. 2
- 2—Body stouter in form, always black or blackish and seldom with noticeable metallic lustre. Sonoran regions. 3
- Body narrower, decidedly slender though convex and subcylindric, bright metallic in lustre; third antennal joint much shorter, but little longer than the fourth. Southern Mexico. 6
- 3—Elytra with very feeble æneous or greenish-metallic lustre 4
- Elytra deep black or piceous-black, without trace of metallic lustre 5
- 4—Form elongate-oval, convex, stout, moderately shining, the hairs of the elytra very short and sparse, dense and longer as usual at the finely punctate basal margin, also unequally on the head, the legs very sparsely pubescent; head large, with large irregular elevated smooth areas which are separated by æneous depressions, the latter densely and rather finely punctate; antennæ moderate, the third joint unusually elongate; pro-

thorax three-fourths wider than long, the sides broadly rounded, more strongly converging anteriorly, the basal angles somewhat prominent; apical margin broadly arcuate except laterally, the base sinuate laterally; surface rugose laterally, and, less distinctly, apically, rather finely, remotely punctate medially, the interspaces laterally with dense æneous punctures in vermiculate series; scutellum transversely oval; elytra not evidently wider than the prothorax, narrowed slightly to near apical third, the sides thence rounding and feebly serrulate to the feebly emarginate and bidenticulate tips; surface convex throughout, striato-punctate nearly as in *brevipes*; under surface shining, black and æneous, the abdomen strongly, rather sparsely æneo-punctate, convex, notably ascending posteriorly. Length 28.0-29.0 mm.; width 10.0-10.3 mm. Western Texas.....**grossus** n. sp.

- A—Nearly similar to the preceding but shorter, the prothorax somewhat shorter, more strongly punctured, less narrowed anteriorly, the head relatively still larger; elytra shorter, more obtuse behind, the series of punctures scarcely at all impressed and the punctuation laterally less confused and scarcely more close-set than toward the suture; tibiæ shorter, more outwardly expanded at apex and notably more densely setulose throughout. Length 26.5 mm.; width 9.5 mm. Western Texas.....**robustus** n. subsp.

Form narrower and more elongate, smaller in size, subcylindrically convex. shining, the head large, in great part æneous, densely punctured and pubescent, the smooth irregular areas strongly elevated; antennæ strongly compressed as usual, the third joint slightly less elongate; eyes large and prominent; prothorax deep black, but little more than one-half wider than long, the sides feebly converging, broadly, feebly and subevenly arcuate from base to apex, the latter feebly arcuate; base deeply sinuate laterally, the angles not at all everted; surface deeply vermicularly rugose, with the intervals æneo-punctate, coarsely punctate apically, less coarsely and sparsely medially and basally; scutellum tumid, transversely oval; elytra but little wider than the prothorax, formed nearly as in *grossus* and similarly sculptured, with widely spaced and distinct punctures in uneven single series along the intervals, greenish-metallic in lustre, the sides apically rather strongly and acutely serrulate, the apex approximately bidentate as usual; under surface in great part æneous, the abdomen strongly, more closely and irregularly punctured, less strongly ascending posteriorly than in *grossus*; tibiæ not densely but strongly albedo-setulose. Length 25.0 mm.; width 7.8 mm. Arizona (Tucson).....**serrulatus** n. sp.

Form elongate, convex, much smaller in size than *grossus*, blackish-æneous in color, the pubescence sparse and extremely short; prothorax one-half wider than long, slightly narrowed anteriorly, the sides broadly rounded, the posterior angles acute; elytra finely striato-punctate, the intervals sparsely punctate. Length 18.8-25.0 mm. Texas (Laredo to Ringgold Barracks). [= *Buprestis sphenicus* Lec.]..... **sphenicus** Lec.

- 5—Body rather short, stout, the male narrower and with more cuneate elytra, deep black, slightly shining, subglabrous as usual; head moderately

large, less elevated between the eyes than in the preceding species, rugose and with greenish punctures, pubescent, more concave anteriorly in the male; eyes large, prominent; antennæ extending nearly to the base of the prothorax (♂) or evidently shorter (♀); prothorax trapezoidal, three-fourths to four-fifths wider than long, the sides distinctly arcuate, becoming feebly sinuate basally, rugosely æneo-punctate, smoother and sparsely punctate medially and toward base; scutellum less transverse and more quadrate than in the preceding species; elytra scarcely wider than the prothorax, of the usual form, scarcely at all serrulate at the sides behind, with the usual apical sinuation, the surface notably flattened toward apex, the punctured series more or less confused or irregular except toward apex, where they become deeper, excepting four pairs of striæ on each elytron, which are regular throughout; under surface black and ænescent, the abdomen coarsely and rugosely but not densely punctate; legs moderate, the hind tibiæ more gradually and distinctly thickened from base to apex in the male, the fifth ventral truncate in both sexes but with the marginal gutter deeper and more abrupt in the male. Length 23.0-27.0 mm.; width 8.3-10.0 mm. Southern Arizona..... **planicauda** n. sp.

Body parallel and more convex, deep black, somewhat shining; head relatively rather small, nearly as in *planicauda*, the eyes large and prominent; third antennal joint a little more than twice as long as wide; prothorax feebly trapezoidal, three-fourths wider than long, the sides broadly and feebly arcuate, becoming straight toward base, the surface coarsely but rather sparsely punctate, becoming æneo-punctate and rugose laterally and apically; scutellum scarcely one-half wider than long, oval, broadly impressed; elytra barely wider than the prothorax, parallel and straight at the sides to apical third, thence gradually rounding to the emarginate apices, not at all serrulate except feebly very near the tip; surface not notably depressed posteriorly, sculptured as in *planicauda* though very much more sparsely and less conspicuously, the only regular series, except the sutural as in *planicauda*, being in four pairs; under surface black and æneous, the abdomen rugosely punctate and with large flattened punctureless patches laterally. *Male* with the apex of the fifth ventral transversely excavated, the posterior truncate edge broadly, angularly lobed toward the middle. Length 20.0 mm.; width 7.0 mm. Arizona (Nogales).
cylindricus n. sp.

6—Pronotum somewhat irregularly sculptured, generally with rounded punctureless areas anteriorly; body moderately narrow, cupreous, the elytra greenish-metallic, parallel, feebly striato-punctate, the rounding sides posteriorly evidently serrulate, the surface without dense pubescence at base. Length 20.0 mm.; width 6.5 mm. Mexico.

***mexicanus** Lap.-Gory

Prasinalla n. subgen.

Hind tarsus as long as the tibia. Body elongate, cuneate, æneous-green, shining; epistoma truncate; head intricato-rugose, the antennæ very long, nearly one-half longer than the head and prothorax, the latter slightly wider than long, narrowed anteriorly, the sides nearly straight, truncate in front, "trisinuate" at base, the hind angles acute, not everted; surface coarsely, and, at the sides, confluent punctate; elytra narrow, convex, gradually narrowing from base to apex, the tips bidentate, the surface rather coarsely and irregularly striato-punctate; under surface finely and densely punctate, paler in color, the prosternum polished and violaceous; hind tarsi compressed, the first joint as long as the two following combined. Length 18.8 mm. California (Owen's Valley). [= *Gyascutus cuneatus* Horn].

cuneatus Horn

Hind tarsus distinctly shorter than the tibia, though slender and subcompressed..... 2

2—Body narrow, the elytra unevenly cuneate, rather convex, polished, bright metallic green above and beneath, the prosternum cuprascent, the posterior margins of the ventral segments steel-blue; head with the vertex elevated, the ocular slopes abruptly descending from longitudinal polished impunctate areas along the sides, the median parts more irregularly rugose, the epistoma very feebly and broadly sinuate; antennæ extending to basal fourth of the prothorax, the third joint equal in length to the fourth, the eleventh with a short terminal process; prothorax trapezoidal, with the sides but very feebly arcuate, less than one-half wider than long, the apex arcuato-truncate, the base broadly sinuate laterally and with a small feeble sinus at the scutellum; surface moderately and sparsely punctate, more coarsely and coalescently so laterally, the basal angles acute; scutellum small, only slightly transverse; elytra not evidently wider than the prothorax, feebly narrowed to near apical third, then more strongly to the acutely ogival apex, the sides posteriorly serrulate, the apices emarginate; surface strongly and closely, and, toward the sides and apices, confusedly punctate, the punctured striæ evident however and regular except near the sides, somewhat impressed; under surface finely but not very closely punctate, the prosternum medially polished and with a few punctures scattered along the median line. Length 19.0 mm.; width 6.0 mm. Arizona (Florence)..... **angustus** n. sp.

Body larger and much stouter, similar in lustre and coloration, except that the ventral segments are not margined with blue, the entire abdominal surface irregularly clouded with metallic cupreous and green; head nearly similar, except that the elevated polished areas parallel to the eyes are not so well defined and are covered with coarse sparse punctures; antennæ similar, the eleventh joint with a short terminal process; prothorax similar but more transverse, with the sides more arcuate, becoming more evidently sinuate basally, the basal margin at the scutellum not evidently sinuate and the surface broadly impressed

medially, broadly flattened toward base; elytra as wide as the prothorax, very feebly narrowed to near apical third, then much more rapidly and with the sides serrulate to the emarginate apices, the punctures everywhere well separated, the punctured series wholly unimpressed and almost regular though rather inconspicuous; under surface nearly as in *angustus*, the abdominal punctures fine, feebler and more unevenly distributed. Length 24.0 mm.; width 7.5 mm. Southern California. **metallicus** n. sp.

If the same sexual difference in the antennæ obtains in *Prasinalia* as in *Hippomelas*, the types of both *angustus* and *metallicus* are females; but I can scarcely imagine so great a sexual divergence in the antennæ, and especially in the hind tarsi, as equality of either of them with *cuneatus* would imply, assuming the type of that species to be a male. The synonymy of *mexicanus* with *saginitus*, usually maintained, is I think wholly without basis of fact. There is a specimen before me, from Guerrero, that I have assigned to *mexicanus*, though it is more æneous throughout above and lacks the rounded punctureless spaces on the pronotum. There is no material from the lower Rio Grande valley in my collection at present, so it is only possible to utilize the characters given in the original description for *sphenicus* Lec. It is without much doubt different from any of the more western forms above described. *Brevipes* is almost subgenerically different from the remainder of *Hippomelas* and is placed first as being at one of the extremes in tarsal structure; the fifth ventral of its male is not transversely excavated at tip, though having the edge laminate; it is very broadly truncate at apex, with two small, widely separated and nearly circular emarginations.

Gyascutus Lec.

In this genus the body is convex, though less elongate and more oval than in *Hippomelas*, and the head is relatively much smaller; the surface sculpture is far rougher as a rule and the finely pubescent areas which, during life become thickly coated with a loose whitish farinaceous material, are more extensive, particularly at the sides of the under surface and at the base and along the depressions of the elytra; the finer sculpture and longer pubescence of these areas serve to retain the powdery coating more securely. The general structure is almost as in *Hippomelas*, though the prothorax is always strongly rounding at the sides and more narrowed anteriorly and the hind coxæ are less

dilated internally, their posterior edge being less oblique. The sexual characters are much the same, the fifth ventral being more or less similarly truncate and transversely impressed in both sexes, sometimes with a minute tooth at each side of the truncature. The basal joint of the hind tarsi is frequently much longer than the next two combined, the epistoma broadly sinuato-truncate, the elytra invariably bispiculate at tip and the coloration of the body always metallic. The species are numerous, those known thus far being the following:—

- Pronotum finely and densely punctate between the smooth elevations even medially; elytra with finer and denser punctures in a longitudinal sublateral area; coloration generally greenish-metallic.....2
- Pronotum sparsely and generally more coarsely punctate medially and basally, the elytral sculpture more even, without a clearly demarcated sublateral area of much finer and denser punctuation; size smaller as a rule, the coloration generally coppery.....11
- 2—Elytra rapidly narrowed from base to apex, the latter relatively acute. Body rather stout, convex, shining, obscure greenish-metallic throughout, the depressions rather closely but briefly pubescent; head with large confused polished rugæ, except broadly along the eyes and in front, the depressions densely punctate, ænescent and densely pubescent; prothorax about two-thirds wider than long, trapezoidal, the sides strongly arcuate, converging and straighter anteriorly, sinuate toward the prominent and acute basal angles, the base broadly sinuate laterally and very broadly and feebly at the scutellum; apex broadly, feebly arcuate medially; surface with numerous polished elevations, except in the apical transverse impression, all the depressions densely punctate; scutellum slightly transverse; elytra at the humeri much wider than the prothorax, the sides feebly arcuate; surface of each with three polished, somewhat ragged costæ, the interval of the second and third broad and unusually finely, densely punctate; striation only traceable between the polished sutural elevation and the first costa; under surface unequally punctate, finely and densely toward the bases of the abdominal segments and on the hind coxæ; prosternum narrowly and feebly impressed and punctate along the middle; hind tarsi very slender though evidently shorter than the tibiæ. Length 21.5–23.5 mm.; width 7.8–9.0 mm. California (Yuma). [= *Chalcophora planicosta* Lec.]..... **planicosta** Lec.
- Elytra not rapidly narrowed from base to apex, at the humeri less notably broader than the prothorax as a rule.....3
- 3—Eyes convex and notably prominent as in *planicosta*.....4
- Eyes feebly convex, not at all prominent, continuing the general outline curve of the head.....10
- 4—Elevated polished spaces of the pronotum very numerous and conspicuous.....5

- Elevated pronotal spaces very small and few in number, widely scattered; sculpture and subsutural striation of the elytra aberrant.....9
- 5—Elytra distinctly subcostate, cuprascent. Body moderately stout and convex, shining, the pubescence of the upper surface and head unusually short, also fine, short and close beneath; head and pronotum bright æneous, the former closely and subevenly rugose, except near the eyes and on the occiput, the inter-rugal punctures coarse and not dense; antennæ (♂) extending rather beyond the base of the prothorax, the latter three-fifths wider than long, very slightly narrower than the elytra, of the usual form, the basal angles distinctly everted and acute; scutellar sinuation feeble; surface with strong but very irregular polished elevations, continuous along the median line, the interstitial punctures rather small and dense; elytra just visibly narrowed and with nearly straight sides to apical two-fifths, thence obliquely to the rather acute apex; surface with the three broad costæ of *planicosta* very evident but still more ragged and broken, the striæ, except the sutural and scutellar, scarcely traceable; punctures close, finer and denser laterally. Length 20.0 mm.; width 7.7 mm. Arizona (Bill William's Fork),—F. H. Snow.....**snowi** n. sp.
- Elytra with the costæ never more than traceable; coloration generally more greenish.....6
- 6—Form narrower and subparallel, the sinus of the elytral apices broader than usual.....7
- Form very broadly suboval.....8
- 7—Lustre moderately shining, greenish-æneous; pubescence of the elytra short but rather abundant, subvittate; head subcupreous, unusually densely pubescent, rather finely, very densely punctate throughout, the median line carinate medially, the elevated spots very few in number and inconspicuous; antennæ (♂) extending slightly beyond the base of the prothorax, unusually dilated from the base of the fourth joint; prothorax three-fourths wider than long, the sides broadly rounding, evidently more so medially, the basal angles prominent; surface with strong and confused through isolated elevated spaces, the punctures of the interspaces strong, dense and cribrate; elytra between three and four times as long as the prothorax and a little wider, the dorsal humeral, swelling pronounced; surface striated, suturally, the costæ evident but only feebly convex, not elevated, the surface laterally deeply and very densely cribrate; under surface greenish-æneous, finely, densely punctate except medially. Length 23.5 mm.; width 8.8 mm. Arizona.....**cribriceps** n. sp.
- Lustre strongly shining, greenish, sometimes with a faint æneous tinge; pubescence less abundant, very short; head metallic-green, confusedly rugose, the punctuation of the interspaces coarse, close but much less extensive than the smooth rugosities, the pubescence much sparser than in *cribriceps*; antennæ not so broad at the fourth joint; prothorax nearly similar but with the small punctures of the interspaces not so dense or deeply cribrate; elytra but little wider than the prothorax,

the sides straight and parallel to apical two-fifths, thence rapidly rounded and oblique to the rather obtuse apex, the humeral swelling not conspicuous; disk without costæ, their positions indicated by greater convexity and sparser punctures of the surface, which is evidently striate suturally, finely and only moderately closely punctate even sublaterally, the two apical spines unusually developed. Length 15.7-21.0 mm.; width 5.7-7.8 mm. New Mexico (Demming).

pistorius n. sp.

Lustre moderately shining, obscure greenish-metallic, the surface more convex than in either of the preceding species and with the head decidedly smaller, the large polished rugosities more extensive than the punctuation; antennæ (σ) with the third joint barely as long as the fourth, the latter and succeeding joints moderately compressed, parallel except basally; prothorax two-thirds wider than long, of the usual form, much narrowed anteriorly, the basal angles abruptly everted, acute and very prominent; surface covered with strong polished confused elevations, the punctures of the interspaces rather coarse, fine along the basal margin; elytra subparallel, the sides nearly straight for three-fifths, thence rounding, oblique, and becoming nearly straight to the apex; surface nearly even and almost equally convex throughout, the sublateral punctures not very close-set; striæ obliterated, except the sutural and three more visible double striæ on each, also a fourth visible apically near the sides and more tumid; under surface irregularly and, for the most part, finely and closely punctate. Length 20.0 mm.; width 7.3 mm. Arizona (Winslow),—H. F. Wickham.

acutangulus n. sp.

8—Surface metallic-green with feeble æneous tinge, only moderately shining; pubescence ashy as usual, rather distinct, feebly subvittate on the elytra; head nearly as in *pistorius* but with fewer rugæ and greater extent of dense punctures, particularly before the middle, closely and conspicuously pubescent; antennæ (σ) nearly as in *pistorius* but with the third joint much more elongate, being decidedly longer than the fourth; prothorax short, nearly four-fifths wider than long, rounded at the sides, unusually narrowed but with arcuate sides to the apex, the basal angles unusually feebly everted; surface nearly as in *pistorius*; elytra evidently wider than the prothorax, the sides very feebly converging and feebly arcuate for three-fifths, thence slightly more arcuate and gradually strongly convergent but arcuate to the tip; surface nearly as in *pistorius*; under surface more unevenly punctate. Length 22.5 mm.; width 8.7 mm. Arizona.....*pimalicus* n. sp.

Surface much more polished and pale brassy-green in color, generally not at all cupreous, feebly pubescent, the pubescence inconspicuous and scarcely at all vittate on the elytra; head in great part coarsely and closely rugose, rather sparsely pubescent; antennæ (σ) with the third joint slender but scarcely as long as the fourth; prothorax very transverse (φ) or much less so (σ), the sides more arcuate but rather less converging anteriorly than in *pimalicus*, the hind angles much more prominently everted and acute; surface nearly similar, except that the

punctures are finer, less dense and more inconspicuous medially toward base; elytra almost evenly convex, without trace of costæ except feebly toward tip, the surface evidently though finely striate and more coarsely sculptured in about inner half, the fine punctures sublaterally not close-set and rather uneven; outline nearly as in *pimalicus*; abdominal segments finely and densely punctate only toward base. Length 19.3–24.5 mm.; width 7.0–10.2 mm. Utah (St. George),—H. F. Wickham.

amplus n. sp.

A—Body more elongate, bright brassy-cupreous in color; head nearly similarly rugose but more finely, closely punctate toward the eyes and on the occiput; prothorax twice as wide as long, nearly as in *amplus* but wider at base, the basal angles not so acute or everted but extending sensibly beyond the elytral humeri; elytra more elongate, with the sides very rounding and converging posteriorly, very much more gradually so than in *amplus*, the surface less rugose. Length 23.5 mm.; width 9.0 mm. Utah (St. George),—H. F. Wickham..... **ærata** n. subsp.

9—Very stout, elongate-oval in form, convex, only moderately shining, bronzy-æneous in color, the pubescence of the elytra very short, sparse, evenly distributed, without trace of vittate appearance; head not densely pubescent, about equally rugose and densely punctate; antennæ (♀) attaining about basal third of the pronotum, the prothorax large, but little narrower than the elytra, two-thirds wider than long, the sides subevenly rounded, becoming strongly convergent anteriorly, the basal angles everted and acute; surface with the median line, which is irregularly enlarged anteriorly, and a few small scattered spots elevated and smooth, the major part of the surface, however, rather coarsely, deeply and densely cribrate; elytra with the sides just visibly converging and slightly arcuate for three-fifths, then rather rapidly rounding, becoming oblique and feebly arcuate to the apex; surface subequally and densely punctate throughout, the striæ especially evident in four pairs on each, the first pair not evenly arcuate to the tip but becoming more strongly and externally arcuate in about apical fourth; under surface in great part finely though not densely punctate, very briefly and inconspicuously pubescent. Length 24.5 mm.; width 9.8 mm. Utah (St. George),—H. F. Wickham..... **egregius** n. sp.

10—Elytra with obsolescent smooth costæ or very evident vestiges of disintegrated costulation, the surfaces between the very feeble elevations somewhat concave and finely, densely punctate except suturally; body moderately stout, parallel, rather convex, greenish or viridi-æneous to feebly cuprascent and rather shining, the pubescence distinct and somewhat longer than usual; head rather smaller than usual, the eyes brown in all examples examined, the front about equally rugose and finely, densely punctate; antennæ moderate, the third joint barely as long as the fourth (♂) or a little longer (♀); prothorax two-thirds wider than long, narrowed anteriorly, arcuate at the sides, the basal angles very variable in prominence and eversion; surface with finer, dense punctures and large irregular polished elevations, the me-

dian line broadly and irregularly convex and smooth, more or less evidently bifurcating anteriorly; elytra but little wider than the prothorax, the sides just visibly converging for three-fifths, then rounding and arcuately converging to the tip, the striation evident suturally; under surface finely, densely punctate except medially, the abdominal segments coarsely and sparsely so apically as usual. Length 16.0-23.0 mm.; width 5.5-8.5 mm. Western Texas (abundant near El Paso). [= *Chalcophora obliterata* Lec.]..... **obliteratus** Lec.

Elytra without trace of the principal costules of *obliteratus*, evenly convex and more broadly, subevenly striate, with coarsely broken interspaces in inner half of each, the surface thence to near the sides concave and closely punctate though much more coarsely and less densely than in *obliteratus*; size smaller, the form more slender, shining, brassy-green to dark green in color; head generally with three lines of coarse polished broken rugæ, the remainder densely and finely punctate; antennæ moderate; prothorax nearly similar but shorter, the apical margin generally more angulate at the middle, the basal angles acute and slightly everted, the scutellar sinus broad and very feeble; elytra nearly as in *obliteratus* in general form, the under surface unequally punctured as usual. Length 14.7-17.0 mm.; width 5.0-6.1 mm. South-eastern Arizona..... **fidelis** n. sp.

11—Eyes with their inner margins strongly converging upward as usual; basal angles of the prothorax prominent and acutely everted.....12

Eyes with their inner margins but feebly converging upward, the basal thoracic angles not everted.....17

12—Prothorax very evidently narrower at apex than at base13

Prothorax about as wide at apex as at base; body very small in size.....16

13—Body fusoid, the head not or but little wider than the base of an elytron in either sex.....14

Body subcylindric, the head notably wider than the base of an elytron...15

14—Form very stout, convex, rather shining, deep cupreous in color, the ashy pubescence short but distinct, evidently vittate on the elytra; head unevenly punctate, finely along the eyes, for the most part, however, coarsely and confusedly rugose; eyes large and slightly prominent; antennæ short (♀), with the third joint much longer than the fourth, the remaining joints strongly serrate; prothorax two-thirds wider than long, strongly narrowed anteriorly, rounded at the sides, the basal angles only slightly everted; surface with strong and irregular elevations, with densely punctate interstices laterally, coarsely, rather sparsely and unevenly punctate medially and basally, the scutellar sinus very broad and feeble; elytra evidently less than twice as long as wide, but little wider than the prothorax, of the usual subparallel form, obliquely narrowed posteriorly, the surface throughout subequally convex and rugose and unevenly, not densely punctate, with the striation more or less evident though deeper suturally; fine punctures of the under surface less dense than in the preceding section, the pu-

bescence very short and inconspicuous. Length (♀) 20.0 mm.; width 7.8 mm. Texas (near El Paso)..... **obesus** n. sp.

A—Body nearly similar in general form but much narrower and with less widely separated eyes;—allowing for differences in sex prevailing elsewhere,—and differing also most obviously in being wholly æneous-green, without trace of the strong cupreous color of *obesus*; elytra similarly narrowly and deeply sinuate at the tips and strongly bispiculate, the very short pubescence even more evidently arranged in broad and moderately definite vittæ. Length (♂) 17.5 mm.; width 6.5 mm. Texas (El Paso)..... **æneoviridis** n. subsp.

Form rather stout though evidently less so than in the preceding, cupreous to deep coppery-red, shining, the pubescence very short and sparse, not vittate on the elytra; head rather concave anteriorly, densely punctate, more or less rugose posteriorly on the vertex; eyes much less prominent, their outline continuing that of the head, becoming more longitudinal posteriorly, pale brown with fine black margin in all the numerous examples at hand; antennæ nearly as in *obesus* but more slender; prothorax nearly as in *obesus* but less narrowed anteriorly and with the basal angles more strongly everted and acute, the scutellar sinus a little deeper and more angular; elytra nearly similar throughout though a little more elongate, almost twice as long as wide (♂) or somewhat shorter (♀); under surface nearly similar and with numerous coarse perforate punctures along the middle of the prosternum and densely throughout the width anteriorly. Length (♂) 12.5–16.5, (♀) 13.3–17.5 mm.; width (♂) 4.0–6.2, (♀) 4.6–6.8 mm. Southeastern Arizona..... **compactus** n. sp.

A—Body nearly as in *compactus* but larger and more oblong, bright cupreous, the head slightly larger and with the eyes still more widely separated; prothorax nearly similarly sculptured but more transverse; elytra more evidently oblique at the sides in apical third, the pubescence less uniformly distributed, being rather obviously in single lines but without the broader vittæ of *obesus* and *æneoviridis*. Length (♀) 19.0 mm.; width 7.1 mm. Southeastern Arizona.

solidus n. subsp.

Form moderately robust, reddish or coppery-bronze, moderately shining; prothorax with the sides moderately arcuate, the disk convex, coarsely punctured, somewhat tuberculate at the sides from confluence of the punctures but without distinct callosities; scutellum small, oval; elytra densely and deeply punctate, the punctures near the apex less confused and having a slight tendency to form striæ; body beneath more shining than above, moderately densely punctured but smoother along the median line; prosternum very coarsely punctured in front, the process smooth, with a row of coarse deep punctures so closely placed as to resemble a groove. Length 15.0–19.0 mm. North Carolina (near Wilmington),—fide G. H. Horn..... **carolinensis** Horn

15—Body rather narrowly, subcylindrically convex, shining, cupreous, the pubescence short but very evident, not vittate on the elytra; head for

the most part coarsely, closely and confusedly rugose, finely punctate along the eyes, only slightly concave anteriorly, the eyes nearly as in *compactus* but slightly more prominent, the antennæ nearly similar (σ); prothorax much narrower, not quite one-half wider than long, otherwise similar, only moderately narrowed anteriorly, with the apex but very feebly arcuate medially, the basal angles only feebly subeverted, the scutellar sinus feeble; surface similar but more coarsely as well as more sparsely punctured medially; elytra not quite twice as long as wide, evidently wider than the prothorax, the posterior obliquity slighter and more gradually formed, the surface sculpture almost similar but becoming more rugose laterally; under surface polished, brighter coppery-red, the fine punctures nowhere dense; prosternum with the very coarse perforations widely and irregularly spaced along the middle. Length 15.0 mm.; width 5.6 mm. New Mexico.

cylindrinus n. sp.

- 16—Form very narrowly suboval, moderately convex, shining, bright bronze above, feebly cuprascent beneath, the pubescence very short, sparse and inconspicuous, not vittate on the elytra; head punctate and also with flattened and confused smooth spaces, only feebly concave anteriorly; eyes and antennæ nearly as in *compactus*; prothorax scarcely more than one-half wider than long, the sides subparallel, feebly arcuate medially, rather abruptly and subsinuately convergent near the apex, the basal angles not at all everted; surface coarsely, confluent punctate laterally, finely and sparsely so and basally depressed medially and with two divaricately oblique impressions from the middle of the base; scutellum very small; elytra uniformly convex and sparsely punctate and rugulose throughout, the striæ fine, distinct but not impressed suturally, a submarginal costule evident for a short distance near the middle; under surface not finely, rather sparsely and subrugulose punctate laterally; anterior tibiæ (σ) feebly arcuate, scarcely serrate, the middle tibiæ almost straight. Length 9.2 mm.; width 3.0 mm. Southeastern Arizona. **debilis** n. sp.

Form more elongate and subcuneiform, shining, deep coppery-red; head and antennæ (σ) nearly as in *debilis*; prothorax rather less than one-half wider than long, the sides broadly rounded, very gradually converging anteriorly to the apex, which is very slightly narrower than the base, feebly prominent medially, the basal angles very slightly everted, acute, the scutellar sinus unusually deep and distinct; surface broadly depressed basally but not bi-impressed, coarsely, confluent punctate laterally, very sparsely medially; elytra more elongate, much more than twice as long as wide, evenly convex, finely, very sparsely punctured and sparsely rugulose throughout, the striation barely evident even suturally; under surface not densely, subrugulose punctured laterally; anterior tibiæ (σ) distinctly arcuate and remotely serrulate within, the middle tibiæ also arcuate though more feebly, but serrulate within, only near the tip; posterior tibiæ nearly straight. Length 11.0 mm.; width 3.5 mm. Southeastern Arizona,—G. W. Dunn.

tenuis n. sp.

17—Form and coloration nearly as in *compactus* but much smaller, metallic-purplish, shining, the pubescence fine, short and sparse; head coarsely, unevenly and confluent punctate; antennæ (♀) unusually short; prothorax moderately transverse, convex, narrowed anteriorly, irregularly and coarsely punctate, the punctures confluent laterally with large rugosities, the broad median space simply irregularly and rather sparsely punctate; hind angles right; elytra of the usual form, having small irregular smooth places and also finely punctate, the punctures somewhat regularly serial suturally but confused laterally and apically, where they become somewhat transversely confluent though still not dense; meso- and metasternal side-pieces not coarsely but subconfluent punctate; abdomen rather finely, subrugosely punctured at the sides; anterior tibiæ very slightly arcuate, the intermediate and posterior nearly straight. Length 11.5–13.0 mm. Utah (Chadburn's Ranch)..... **juniperinus** Wick.

The sexual characters in this genus are feeble, and, although the male is generally a little smaller and narrower than the female—sometimes notably so, the readiest way to distinguish the sexes is by the structure of the antennæ, all the joints being elongate in the male, the outer ones becoming rapidly shorter in the female. The anterior, and sometimes also the intermediate, tibiæ are arcuate, being more or less serrulate within in the male, but the anterior are simply more or less bent in the female. My cotype of *juniperinus*, very kindly sent to me by Prof. Wickham, is a female measuring 11.5 by 4.0 mm. in size; the species is peculiar in having the internal margins of the eyes so feebly converging posteriorly, this character having been first noticed by the original describer. The locality of *carolinensis* Horn, is open to the gravest doubt, especially when we consider its perfectly normal type of form, coloration and sculpture. I am of the opinion that no species of *Gyascutus* occurs beyond the desert Sonoran provinces. On comparing *compactus* with what purported to be a specimen of *carolinensis* in the LeConte cabinet, I found the latter to be very similar, though rather less robust and with the scant pubescence more vittate in arrangement on the elytra. In comparison with *Hippomelas*, *Stictocera* and *Spinthoptera*, where individual stature appears to be rather constant, the body in *Gyascutus* frequently varies enormously in size within specific limits; individuals are usually abundant when they occur at all. In the first section of the genus the broad and densely punctate impression along the apical thoracic margin is much more developed and abruptly defined than in the second section.

Stictocera n. gen.

While similar to *Gyascutus* in general organization, the comparatively few species of this genus differ in several important structural features. The hind coxæ, for example, are more rapidly though gradually expanded internally as in *Hippomelas*, and the tarsi also are nearly as in the latter genus. In the pronotum *Stictocera* differs very much from either *Gyascutus* or *Hippomelas*, having the surface even in general convexity, as in the latter, but with a different type of sculpture and without the smooth irregular callus along the median line so very general in the former, so that the elevated basal margin, which distinguishes the genus from all its associates, is entire and not discontinuous at the middle. The species are frequently of large size, comprising the largest Buprestids of this country, and sometimes of very broad elongate-oval convex form, though also occurring narrower and more parallel. The antennæ are strongly compressed, subparallel and densely punctate distally, the outer joints with the apical margin finer than in *Hippomelas* and with the edge sharply defined, the surface internally obliquely merging into the general surface of the joint, the sensory fossa sharply defined, elongate-oval or feebly reniform and near the articulatory foramen. The elytra are evenly convex, uniformly though rugosely sculptured and obscurely striate, as in the second group of *Gyascutus*, the sides seldom very evidently serrulate posteriorly and the apex distinctly bispinulose. The species may be distinguished as follows:—

Basal joint of the hind tarsi but little longer than the second. Head brassy-punctate, with elevated reticulate lines; prothorax with deep punctate æneous rugæ, less densely sculptured than in *Gyascutus obliteratus*, the polished elevations cyaneous, narrowed anteriorly, the sides broadly rounded, the surface transversely impressed at apex, the base trisinate, the posterior angles acute; elytra striato-punctate, transversely and sparsely but deeply rugose, the sides subserrate posteriorly; surface "almost constantly with a large brassy patch on each elytron."—[fide Waterhouse]; under surface æneous, densely punctate and pubescent; pectus and posterior segments of the abdomen coarsely punctate, shining, variegated with bluish reflections. Length 23.3 mm. Mexico (Ures, in the State of Sonora). [= *Chalcophora calata* Lec.] . . . *cæolata* Lec.

Basal joint of the hind tarsi much longer than the second, though distinctly shorter than the next two combined 2

2—Form broadly suboval when well developed, varying greatly in size, shining, dark steel-blue, the depressions brassy; pubescence short,

sparse, evenly distributed on the elytra, coarse and erect, longer and dense in isolated patches on the under surface; head more densely pubescent, with large irregular smooth rugæ, finely, densely punctate along the eyes and in an angulate anterior area; eyes large, prominent, brown in all examples at hand; antennæ not quite attaining the base of the prothorax (♀) or longer (♂), the third joint subequal in length to the fourth; prothorax about twice as wide as long, four-fifths wider than the head, strongly narrowed anteriorly, the sides arcuate, the basal angles everted and acute, the scutellar sinus broad and deep; surface somewhat flattened medially toward base, vermicularly eroded and punctate, the low flat smooth areas large, becoming strongly elevated laterally; elytra distinctly wider than the prothorax, barely twice as long as wide, the sides moderately converging for three-fifths, thence oblique and but slightly arcuate to the apex; surface subuniform throughout, the striæ moderately distinct almost to the sides, the intervals much interrupted by subquadrate spots of greater convexity; abdominal segments steel-blue, very coarsely, unevenly and remotely viridi-punctate, finely, densely punctate only near their bases laterally. Length 21.0-31.0 mm.; width 7.2-12.6 mm. Texas (near El Paso).

pollens n. sp.

Form narrower and subparallel, similarly convex and with the same coloration, lustre and sculpture; head and eyes nearly similar, except that the latter are rather more strongly convex and decidedly less widely separated; antennæ parallel and strongly compressed, the lower part of joints four to eleven pale in color as usual and with the lower margin rectilinearly truncate except basally, differing very markedly in the sexes, as in *Gyascutus*, extending well beyond the base of the prothorax (♂) or failing to attain the base by a corresponding amount (♀); prothorax not so transverse as in *pollens* but otherwise similar; elytra narrower and more parallel, about twice as long as wide, slightly wider than the prothorax, the sides arcuately converging in apical two-fifths, with sculpture and sparse erect setæ as in *pollens*, the under surface nearly similar; anterior tibiæ (♂) slightly bent and with a few very minute serrules within apically, the intermediate more strongly serrulate apically but almost straight. Length 22.0-26.0 mm.; width 8.0-9.7 mm. Arizona (Tuçson),—H. F. Wickham. . . *laticornis* n. sp.

The single very small male of *pollens* in my series has the anterior tibiæ evenly bowed but with the inner subapical serrules almost completely obsolete, the intermediate distinctly arcuate, though less strongly, but with the inner subspiniiform serrules from behind the middle to the apex much stronger. *Laticornis* differs from *pollens*, not only in its narrower form and smaller size on the average, but in its more convex and rather less widely separated eyes, with their inner margins somewhat more strongly converging upward and also in its evidently less transverse prothorax. The apex of the last

abdominal segment is thick, truncate and transversely excavated throughout the width of the truncature in both sexes.

Spinthoptera n. gen.

The genus *Psiloptera*, of Solier, having as its type the South American *attenuata*, of Fabricius, as amplified by Lacordaire became very composite and indefinite in its scope, a number of generic types being included by him which have since been separated and held to be amply valid, such as *Perotis*, *Polybothris*, *Hippomelas* and *Ectinogonia*. Thus simplified *Psiloptera* has been continued by various authors without much further amputation of members, and I have ventured here to detach those forms having the prosternum truncate anteriorly and not medially prolonged and the elytra studded with shallow, finely punctate and pubescent metallic areolæ, under the generic name *Spinthoptera*. General facies, completely ignored by Lacordaire, is of itself in reality the most important structural character prevailing in this group of genera and is more decisive than modifications of special organs, of which there are very few. In fact the genera might be termed opinionative, in the same sense that species not characterized by striking structural differences in special organs are usually called opinionative species. To maintain that either species or genera are less real for being of such an opinionative nature is not justifiable; it merely necessitates greater intelligence and experience in specifically delimiting such series of individuals, or in aggregating such groups of species to form genera, with a greater attendant risk of mistakes; but after all, in the search for truth, which alone should be the ultimate aim, errors of judgment are practically unavoidable at times.

We note in this genus a departure in several structural features from those of the three preceding genera, aside from the special and peculiar modification of the antennæ common to all the Psilopterids. There is, for example, no terminal antennal process; the prosternum, instead of being punctured or feebly impressed along the middle, is remotely bisulcate, and the first abdominal segment, instead of being uniformly convex medially, is here either flattened or sulcate. We should note also an entire absence of the raised basal margin of the pronotum and ante-scutellar sinuation of the Hippomelids, the constant presence of two small perforate ante-scutellar discal punctures, wholly unsuggested in the Hippomelids but forcefully remindful of

Dicerca, and the frequent posterior prolongation of the elytra in *Psiloptera*, also betraying an obscure bond of affinity with that genus and presumably signifying derivation from a common primitive stock. The striation of the elytra is much more developed and obvious than in the Hippomelids, the hind coxæ rapidly dilated within as in *Hippomelas* and *Stictocera*, the outer antennal joints much compressed, rectilinearly truncate beneath as in those genera and wholly differing from *Dicerca*, densely punctulate along their obliquely flattened lower edges and with sensory fossæ lateral and linear in form, as well as one terminal, which is narrow, deep and oblique. The hind tarsi are thick, with the three basal joints progressively diminishing very slightly in length; sexual differences are virtually unobservable. The species and subspecies of our fauna may be outlined as follows:—

- Prothorax widest at or near the middle; elytra arcuately narrowing posteriorly and more or less obtuse.....2
- Prothorax widest at base.....6
- 2—Prothorax rounded at the sides; first ventral segment merely flattened along the median line.....3
- Prothorax angulate at the sides at or slightly behind the middle; first ventral segment deeply sulcate along the median line.....5
- 3—Antennæ metallic blue or greenish throughout. Body large in size, stout, convex, shining, dark steel-blue, the impressions bright greenish-æneous, subglabrous, the elytral areolæ densely punctate and having short decumbent pubescence, the irregular sparse vestiture of the under surface longer, decumbent, arranged in sparse radiating clusters of three or four hairs each from the very coarse transverse punctures, especially of the abdomen; head very coarsely rugose throughout, the antennæ short, but little longer than the head in either sex, slightly more apically attenuated in the male; eyes large though only moderately prominent, widely separated; prothorax barely twice as wide as long, widest behind the middle, the sides broadly, subevenly rounded, becoming gradually more convergent apically and feebly so and slightly sinuate basally, the basal angles right; apex feebly arcuate except laterally, the base very broadly lobed, sometimes subangularly; surface convex anteriorly and laterally, more flattened basally and with a distinct subquadrate impression at the middle near the base; punctures very coarse and irregular, generally sparse medially, very unevenly and vermicularly confluent laterally; scutellum small, rounded; elytra but little wider than the prothorax, not quite twice as long as wide, parallel, gradually rounding at the sides and obliquely, subarcuately narrowed in apical two-fifths to the apices, the latter narrowly truncate, sometimes obliquely with the sutural angle more prominent; punctures large, impressed, arranged in regular series which are slightly impressed,

not much more so laterally, the finely punctate shallow areolæ rather small in size, frequently subtransversely coalescent; prosternum densely, coarsely punctate, broadly polished and impunctate along the middle; legs blue, the femora frequently subviolaceous. Length 26.0-28.8 mm.; width 10.2-11.6 mm. Texas (El Paso).....**convexa** n. sp.

Antennæ probably metallic blue in color but not described, the body nearly as in *convexa* but with the prothorax very much more transverse, the form stout, the color dark steel-blue, the head and prothorax with greenish-brassy punctures, the latter unequally punctate, at the middle basally broadly foveate, almost three times as wide as long, broader before the base, the sides anteriorly strongly rounded, posteriorly sinuate, the hind angles right; elytra with punctured striæ, the intervals with many quadrate spaces, which are impressed, greenish-brassy, granulate and pubescent, at the apex obliquely subtruncate, the sutural angles rather prominent; under surface densely and coarsely viridipunctate; prosternum bisulcate. Length 22.5-28.7 mm. Texas (Eagle Pass,—LeConte). [= *Psiloptera valens* Lec.]....**valens** Lec.

Antennæ non-metallic, except sometimes feebly toward base.....4

4—Body stout, parallel and convex, nearly as in *convexa* and *valens* in coloration, lustre and sculpture throughout, the eyes larger, much more prominent and less widely separated than in the former; antennæ similar but deep black, becoming faintly bluish toward base; prothorax shorter than in *convexa*, apparently somewhat more than twice as wide as long and of a different outline, being more anteriorly inflated and widest before the middle laterally, more sinuate basally, the angles similar, the basal impression more extended anteriorly, obsolescent beyond the middle; elytra nearly similar but scarcely more than three-fourths longer than wide, the apical truncature oblique, angularly acute and prominent suturally, the æneous areolæ larger, the punctures of the series toward the suture smaller; under surface nearly similar, the tibiæ rather more closely punctate and pubescent, the abdomen with large and uniform dense patches of pubescence laterally. Length 23.5-24.5 mm.; width 9.2-9.8 mm. Western Texas (locality unrecorded).....**ocularis** n. sp.

Body more slender, parallel, convex, very much smaller in size, shining, almost similarly sculptured; head small, black, with coarse æneous rugæ, the eyes moderate, not notably prominent; antennæ short, piceous-black throughout; prothorax black, convex, three-fourths wider than long, only moderately and gradually narrowed anteriorly, widest near basal third, the sides very broadly rounded, becoming sinuate only at the basal angles, the surface deeply and rather abruptly impressed at the middle basally, the punctures very coarse, not close, ænescent and irregular; elytra blackish-blue, in form and sculpture nearly as in the preceding species, the apices more narrowly and obliquely truncate; under surface nearly similar, except that the more densely and evenly pubescent sublateral patches of the abdomen are much more finely and feebly sculptured; legs and tarsi more slender, blue, the femora

very coarsely punctate, partially greenish basally. Length 15.7-16.2 mm.; width 5.4-5.9 mm. Texas (locality unrecorded). . . . **parva** n. sp.

Body nearly as in *parva* but larger and stouter and differing from any of the preceding in the shining blue and coppery iridescence of the elytra, parallel, convex; head rather small, the eyes convex and prominent, brown in all specimens at hand, widely separated, the front with strong confused cupreo-æneous rugæ; antennæ shining, sometimes with faint greenish-black reflection, bluish toward base; prothorax not quite twice as wide as long, widest well behind the middle, nearly as in *convexa*, the median basal impression stronger and extending further anteriorly, generally evanescent beyond the middle, the smooth areas blue-black, the remainder æneous; elytra nearly as in the preceding species but with much larger and more coalescent cupreous areolæ, which are more coarsely and densely punctate, slightly opaque and with short, less conspicuous pubescence, deeper laterally, where they produce a more rugose appearance; apices narrowly and very obliquely sinuato-truncate, the truncature sometimes difficult to trace; under surface with the densely pubescent patches of the abdomen much more finely and densely sculptured than in *convexa* or *ocularis* but more nearly as in *parva*; legs bluish or bronzed, the femora, and the tibiæ less evidently, deeper blue apically. Length 19.4-21.5 mm.; width 7.0-8.0 mm. Northern Texas and Kansas. [= *Dicerca woodhousei* Lec.]..... **woodhousei** Lec.

5—Form oblong, stout, moderately convex, the pronotum much less strongly so anteriorly and laterally than in the preceding group and more gradually and strongly flattened throughout the width basally, but not or scarcely impressed at the middle subbasally, the two ante-scutellar punctures thereby rendered very obvious, blue-black, shining, the depressions throughout brilliant viridi-æneous; head strongly, vermicularly rugose and coarsely punctured, the eyes large and strongly convex, widely separated, the antennæ and legs as in *convexa*, bright violaceous-blue; prothorax somewhat more than twice as wide as long, broadly angulate at the sides, widest distinctly behind the middle, where the width is evidently greater than at base, the converging sides nearly straight from angulation to apex, feebly sinuate basally, the basal angles acute; surface with coarse æneous punctures, sparse and unevenly distributed, becoming densely and very irregularly aggregated laterally; elytra nearly as in *convexa* but not so convex, the feeble oblique apical truncature variable, sometimes transverse; punctures strong, arranged in coarse impressed series deeper laterally, the depressed areas brilliantly shining, densely, rather finely punctate and moderately pubescent, very variable in extent, generally isolated, sometimes larger and in great part subtransversely confluent; sulcus of the first ventral abrupt and deep, evanescent near the hind margin though in very variable degree, generally narrower, deeper and longer (♂) or rapidly shallow with more posteriorly flaring sides (♀). Length 22.0-31.0 mm.; width 8.0-11.7 mm. Arizona.
arizonica n. sp.

Form nearly as in "*Dicerca divaricata*" but without elytral prolongation

and more convex, black, shining above, the under surface bright cupreous; depressions of the upper surface cupreous; head cupreous, the front feebly depressed medially, coarsely sculptured; antennæ short, obscure cupreous; prothorax convex, twice as wide as long, apparently widest slightly behind the middle, the sides subangulate, converging anteriorly, sinuate basally, the basal angles right; surface coarsely, sparsely and irregularly punctate, the punctures more crowded laterally, longitudinally and feebly impressed along the middle, with a narrow smoother median line; elytra gradually narrowing to the apices, the latter obliquely truncate, with the outer angle dentiform; serial punctures becoming transversely confluent laterad, producing a rugose appearance, the intervals with a few punctures and some impressed punctured bright cupreous spots; under surface coarsely and more or less confluent punctate, the prosternum as usual; first ventral sulcate medially, the sulcus abruptly defined; femora cupreous, the tibiæ black above with coarse greenish punctures, greenish-cupreous on the sides, the tarsi obscurely cupreous. Length 16.5-22.0 mm. Texas (Brownsville). [= *Psiloptera cupreopunctata* S.]. **cupreopunctata** Schaeff.

- 6—Form stout, steel-blue, the head and pronotum variegated with viridi-æneous punctures, the pronotum unequally punctate, broadly impressed "foveato" in the middle at base; prothorax almost twice as wide as long, narrowed anteriorly, the sides at the middle obtusely angulate, thence feebly subsinuate to the base, the basal angles right; elytra with punctured striae, the intervals with quadrate impressed spaces, which are granulate, pubescent and greenish-golden in color, very variable in extent as in *arizonica*, obliquely feebly truncate at apex; under surface densely and coarsely viridi-punctate, the prosternum bisulcate. Length 26.5-31.3 mm. Mexico (Üres, in the State of Sonora). [= *Psiloptera webbi* Lec.]. **webbi** Lec.

Form short, stout and very convex, only moderately shining, blackish-bronze above with metallic green depressions; under surface dull viridi-æneous laterally, deep and brilliant metallic roseate along the middle, very bright on the polished sterna, dull on the abdomen; head very coarsely, rugosely punctate, the antennal ridges unusually strong; eyes prominent; antennæ black, very feebly bronzed, with the lateral sensory fossæ small and rounded or oval, not linear as in the preceding species; prothorax glabrous, about twice as wide as long, the sides rapidly converging from base to apex, feebly angulate behind basal third, thence straight to the apex, slightly sinuate in less than basal third, the angles slightly less than right; surface coarsely, sparsely but irregularly æneo-punctate, more densely laterally, where there are some elevated smooth areas, very feebly and indefinitely impressed toward the middle of the base, the two punctures very evident; elytra but little wider than the prothorax, the sides parallel and straight for nearly three-fifths, thence gradually oblique, becoming very feebly sinuate near the apices, which are rather broadly and obliquely truncate, with the outer spine rather strong; surface with suturally feebly, laterally strongly, impressed series of coarse punctures, becoming contiguous

and foveiform laterally, also with deeply impressed, finely, densely punctate and puberulent green areolæ, which become obsolete in about inner half, except posteriorly, where they extend to the suture through small in size; intervals punctureless; under surface closely, coarsely and irregularly sculptured, the sterna broadly smooth along the middle, the first ventral narrowly and deeply sulcate; legs bronzed, the femora with a feebly rose-colored reflection apically. Length 22.0 mm.; width 8.5 mm. Panama (Taboga Island)..... **insularis* n. sp.

Some of the above species, notably those of the *valens* series, appear to resemble the Mexican *drummondi* Lap.-Gory, in general form and sculpture, but the figure of that species seems to indicate a broader and more arcuate basal pronotal impression, and, as our forms constitute several allied species, I assume that none of them is actually synonymous with *drummondi*. It is impossible to imagine any reason whatever for assigning such mutually distinct species as *webbi*, *valens* and *woodhousei* to *drummondi* as varieties, and it is still more preposterous to consider them synonyms. The structure of the base of the abdomen seems, among other features, to have been wholly overlooked in distinguishing species of the *webbi* and *valens* type. In *valens* the prothorax is undoubtedly very much shorter and more inflated at the sides than in *convexa*, but the statement by LeConte that it is nearly three times as wide as long is doubtless far overdrawn.² In *ocularis* the prothorax is more transverse than in *convexa* and is more anteriorly dilated, the eyes and antennæ also being notably different from those of *convexa* in prominence and color, but, as these points are not mentioned by LeConte in regard to *valens*, further observation will be necessary before deciding definitely the kinship of *ocularis* and

² This proportional width of the prothorax is very deceptive. I have recently measured with dividers the width in terms of length, in cases where the prothorax certainly seemed to be beyond doubt more than twice as wide as long, as in *Spinthoptera ocularis*, for example, and the result proves that, even in such cases, it comes far short of actually being even as much as twice as wide as long. The comparative statements given in the descriptions of the present paper, as well as all others of the writer, are not based upon instrumental measurements, but are simply the ratios as they appear to his eye. The deception is due, in most part at least, to the shape of the apex, base and side margins, for if we had before us a geometric rectangle of the actual extreme dimensions, there would be much less trouble in realizing the true ratio. This goes to prove the necessity for stating the true dimensions of all the parts of an animal in linear units, as advocated by the writer many years ago, if we desire to record a description of the greatest possible value for purposes of comparison.

valens. It is distinctly stated by LeConte that the prothorax of *webbi* is wider at the base than at any other place, but Mr. Schaeffer seems to have mistaken this to be "wider at base than at apex," which of course is very evidently true of every species of the genus; I have assumed, however, that in *cupreopunctata* the greatest thoracic width is at or near the middle. I have been unable to identify *insularis* with any species of the *Biologia* and conclude therefore that it is as yet unrecorded in the literature of the subject; it seems to resemble *hirtomaculata* Hbst., somewhat, but that species is described by Gory as being slightly depressed, with the prothorax lightly pubescent laterally.

Chalcophora Solier.

Although in this genus the general habitus is wholly unlike that of the preceding genera, the affinity may in reality not be so remote as appears, for the two prosternal sulci are present as in *Spinthoptera*, though deeper and much more approximate. This and the following differ from any others of the genera here considered in having the epistoma more narrowed and much more abruptly and deeply emarginate, and the supra-antennal ridge, so prominent in the preceding genera, is here obsolete and replaced by a broad feeble rugose swelling of the surface. The antennæ in *Chalcophora* are slender, with elongate and sparsely punctate outer joints, which appear to be wholly devoid of sensory fossæ terminal or otherwise, being the only genus of this section of the family, coming under my observation, in which some trace at least of terminal fossæ cannot be discerned; the terminal joint is evenly oval and without suspicion of apical process. The pronotum is constantly broadly though feebly sulcate, the sulcus longitudinally divided by a slightly elevated obtuse smoother line, the scutellum small, the elytra gradually narrowed behind, entire at tip, not or but feebly serrulate at the sides posteriorly and with the sutural angle sometimes spiniform; their sculpture is peculiarly uneven, with large and finely punctate, more metallic depressions and polished lines and elevations, both having a generally though unevenly longitudinal arrangement. The legs are rather slender, the male tibiæ without any striking sexual modifications, the first ventral impressed or sulcate and the basal joint of the hind tarsi at least as long as the two following combined. The male modification of the abdominal apex is more

pronounced than in any other genus except *Texania*, and consists of a deep, abrupt and angular emargination, not suggested at all in the female. The male also has the median parts of the sterna more impressed and hairy than in the female as a rule, a character suggesting *Buprestis* and other following genera. The species are rather numerous and may be separated by the following characters:—

- Subsutural groove of the elytra abbreviated, attaining basal third or fourth; body more sombre in coloration, though similarly shining; basal sulcus of the abdomen glabrous in both sexes 2
- Subsutural groove continuing to the base of the elytra though shallow and sometimes subinterrupted near the base; lustre of the body more brightly æneous or cupreous as a rule; basal sulcus of the abdomen, as well as the sterna, more pubescent in the male. 8
- 2—Sutural angles of the elytra distinctly dentate or spinulose; males not rare 3
- Sutural angles not prolonged though sometimes feebly subprominent; males apparently much less abundant than the females. 4
- 3—Depressions of the elytra finely, densely and evenly punctulate, shining, blackish-æneous, the depressions less shining and more cupreous; under surface obscure æneous and partially cinereo-pubescent; head well developed, unevenly, moderately punctate, with a very large deep frontal impression which is narrowed posteriorly along the median line; eyes rather prominent; antennæ not extending to the base of the prothorax even in the male; prothorax rather transverse, fully two-thirds wider than long, the sides broadly rounded anteriorly, sometimes prominent and occasionally distinctly angulate (♀), parallel toward base and generally nearly straight; surface broadly, roughly and unevenly sculptured and biimpressed laterally, the two punctate sulci very feeble, the elevations smooth; scutellum small; elytra scarcely more than three-fourths longer than wide, the sides parallel, obliquely and arcuately converging in apical two-fifths and more or less visibly serrulate, the subsutural groove rather feebly concave, the second constricted and subinterrupted at and behind the middle, the sublateral carina nearly entire, the next distinct before the middle, uniting with the submarginal behind the humeri; under surface smooth, with small patches of fine close punctures. Length (♂) 20.0–22.5, (♀) 25.0–28.5 mm.; width (♂) 6.9–7.5, (♀) 8.6–9.7 mm. Atlantic region,—Massachusetts to Florida. [= *novæ-boracensis* Fitch, *Buprestis virginiensis* Drury, *virginica* Say and Harris, *virginiaca* Gmel., and *cupreomaculata* Goeze]..... **virginiensis** Drury
- A—Nearly similar to *virginiensis* but more elongate and with the second elytral sulcus more interrupted at the middle, blacker in color, very shining, the under surface duller cupreo-æneous; head nearly similar but more coarsely, sparsely punctate, the eyes less convex; prothorax much less transverse, but little more than one-half wider than long,

the sides almost evenly and broadly arcuate, gradually converging anteriorly, parallel and straight basally, the surface rather more deeply impressed at the sides behind the middle, the median sulci extremely shallow and obsolescent; elytra similar but notably more elongate, the gradually converging and evenly arcuate sides posteriorly even more evidently serrulate; basal sulcus of the abdomen extending beyond the middle of the second segment. Length (♂) 27.0 mm.; width 8.5 mm. Florida.....**obliterata** n. subsp.

Depressions of the elytra more coarsely and subrugosely punctate, the head less developed; body nearly as in *virginiensis* but with relatively smaller head and prothorax and rather more coppery lustre; head almost similarly sculptured, the excavation rather narrower, the eyes a little less prominent; prothorax nearly similar in outline and sculpture but somewhat more transverse, the sides broadly rounded and converging anteriorly (♂) or more subangulate anteriorly (♀), parallel and nearly straight basally; elytra much more evidently wider than the prothorax, otherwise nearly similar; under surface more coppery in lustre. Length (♂) 21.0-22.0 mm.; width 7.2-7.7 mm. Wisconsin (Bayfield),—H. F. Wickham.....**lacustris** Lec.

A—Nearly as in *lacustris* but with the head (♂) relatively still smaller and with a much narrower and feebler frontal excavation along the middle; prothorax still more transverse, swollen and rounded at the sides anteriorly, the sides parallel but broadly sinuate basally, the basal angles more acute; surface almost similarly sculptured; elytra less decidedly wider than the prothorax but otherwise nearly similar, the coppery depressions still more coarsely punctato-rugose and very much more strikingly so than in *virginiensis*; under surface nearly similar, cupreo-æneous. Length (♂) 22.0 mm.; width 7.8 mm. Massachusetts.....**brevicollis** n. subsp.

4—First ventral scarcely more than flattened medially. Body very elongate, moderately convex, shining, black, the elytral depressions faintly bronzed, beneath feebly cupreous in lustre; head moderate, coarsely, irregularly and not closely punctate, the excavation broad anteriorly, narrow and deep along the median line posteriorly; eyes large but unusually feebly convex; prothorax two-thirds wider than long, the sides broadly rounded and gradually convergent anteriorly, parallel and somewhat sinuate basally; the basal angles unusually prominent; surface with the usual sculpture, the median impression very shallow, with the dividing ridge unusually narrow; elytra evidently wider than the prothorax, nearly twice as long as wide, the sides posteriorly unusually gradually convergent, becoming nearly straight before the broadly rounded apical angles, the sutural angle sharp and a little less than right, not at all produced; surface sculptured nearly as in *virginiensis*; under surface nearly as in that species but with the pubescence everywhere very short and inconspicuous, the coarse punctures not so large. Length (♀) 27.0 mm.; width 8.3 mm. Honduras.

***hondurasica** n. sp.

First ventral distinctly sulcate along the middle as usual; sides of the pro-

- thorax anteriorly more or less distinctly angulate or prominently and narrowly rounded, especially in the female.....5
- 5—Elytral depressions not or but slightly rugose, having fine dense punctures nearly as in *virginiensis*.....6
- Elytral depressions with larger, somewhat separated punctures, giving a much more coarsely rugulose appearance.....7
- 6—Elytra posteriorly more gradually obliquely narrowed, with the sides only very feebly arcuate; females only at hand. Body very elongate, moderately convex, shining, black, the depressions and the under surface bright cupreous; head well developed, irregularly punctate; an area along the eyes, much wider than in *hondurasica* and a little wider than in *virginiensis*, finely, densely sculptured, the frontal pit deep and nearly as in the latter; eyes smaller and still more remotely separated; prothorax nearly as in *virginiensis*, except that the median densely punctate impression is broader and somewhat shallower and the dividing median line very much wider and less convex; elytra nearly as in *virginiensis* but much more elongate, about twice as long as wide, the sides posteriorly with more obsolete or scarcely traceable serrulation, the apical angles broadly rounded, thence narrowly subtransverse to the suture; under surface with the usual moderately coarse, sparse punctures, with lateral patches of fine, dense and more metallic punctuation, the ashy hairs not conspicuous though rather long. Length (♀) 26.5–28.5 mm.; width 9.0–9.8 mm. California. [= *Buprestis angulicollis* Lec.]..... **angulicollis** Lec.
- A—Nearly as in *angulicollis* but rather narrower and more convex, more sombre in coloration, the depressions dull subcupreous or bronzed, the under surface black, with feebly cupreous and finely punctured areas; prothorax less transverse, with less obvious anterior angulation at the sides, as in *angulicollis* very slightly wider at the angulation than at base, with the intervening sides tending to bisinuation; elytra nearly similar but with the sculpture of the depressions evidently less fine. Length (♀) 24.5–26.5 mm.; width 8.5–9.0 mm. Colorado (Boulder Co.)..... **montana** n. subsp.
- Elytra posteriorly more rapidly converging and rounded at the sides, or, evidently more obtuse. Body somewhat broader in form and rather less convex, shining, black, the depressions of the upper surface bronzed, the lower surface less brightly cupreous; head nearly similar, the eyes not prominent; prothorax more transverse, much more abruptly prominent at the sides at apical third (♀) or not very markedly so (♂), the general surface more flattened basally, the sculpture nearly similar; elytra similar in general sculpture but with the raised polished spaces larger and less abruptly defined and the sides more deeply sinuate at about two-fifths from the base, much less than twice as long as wide; metasternum more concave in both sexes, with unusually long and coarse white hairs in the male. Length (♂, ♀) 24.0–28.0 mm.; width 8.5–10.0 mm. Washington State and Idaho (Fort Cœur d'Alene)..... **oregonensis** Fitch

7—Body broad and only moderately convex, shining, black, the depressions obscurely cupreous, beneath dull cupreous; polished black areas with feeble cupreous reflection; head as in *virginiensis*, except that the antennæ are shorter and thicker than in the female of that species, the outer joints much less elongate; prothorax more transverse, very prominent laterally, and much wider than at base at about apical third, the sides thence converging and bisinuate to the base; surface sculptured in general as in that species, the depressions much more coarsely rugose and the median smooth line broader, the basal callus at lateral fourth much larger and more conspicuous; elytra broader, the converging sides posteriorly more rounded, with scarcely a trace of serrulation, the sculpture having the same general arrangement but with the elevations feebler and less sharply defined; under surface with the usual sculpture. Length (♀) 28.0 mm.; width 10.0 mm. Florida. **prominens** n. sp.

8—Smooth polished areas of the elytra but feebly elevated and less abruptly formed, in some parts dilated, the general sculpture nearly as in *virginiensis*. 9

Smooth areas very abruptly formed, higher and linear in form throughout; sutural angle of the elytra never prolonged or dentiform; antennæ thicker; elytra very evidently wider than the prothorax; species more boreal in habitat. 10

9—Form narrower and more elongate than in *virginiensis*, moderately convex, polished, generally with strong golden-æneous lustre throughout above and beneath but occasionally black and without much metallic lustre; head well developed, unevenly punctured and rugose, the deep frontal sulcus not dilated anteriorly; eyes moderate, slightly prominent, the antennæ slender; prothorax but little more than one-half wider than long, the sides parallel and nearly straight, gradually broadly rounding and very moderately converging anteriorly; surface sculpture as usual, except that the median smooth line is very broad and feebly convex; elytra about twice as long as wide, but little wider than the prothorax, the sides very gradually converging and feebly arcuate posteriorly, the apex unusually narrow, with the sutural angles strongly prolonged and spiculiform; surface with the smooth convex parts together much exceeding in area the depressions, the latter finely and for the most part densely punctate; sutural sulcus becoming subobliterated basally; under surface with the pubescence of the finely and densely punctate areas very distinct, ashy white. Length (♂) 22.7–24.0, (♀) 24.0–28.0 mm.; width (♂) 7.5–8.2, (♀) 7.7–9.2 mm. Southern Atlantic States. [= *Buprestis georgiana* Lec., and *liberta* Lap.-Gory nec Germ.].
georgiana Lec.

Form and sculpture nearly as in *georgiana* but narrower, the æneous lustre varied with clouds of metallic bluish-green toward the sides of the elytra, the under surface bright subcupreous; head nearly similar, the eyes much less convex; prothorax trapezoidal, barely one-half wider than long, the sides distinctly converging and nearly straight from base to apex, very feebly arcuate anteriorly, the sculpture nearly similar; elytra in form and sculpture nearly as in *georgiana* but more evidently wider than the pro-

thorax and with the sutural angles at apex not in the least prolonged or dentiform, the apices very narrowly oblique; under surface nearly similar, except that the densely punctate areas are much less pubescent and the angular emargination of the last ventral in the male narrower, acute, with its sides straight and not of a bluntly ogival form as in that species. Length (σ) 22.5 mm.; width 7.0 mm. Southern Atlantic States **iridescens** n. sp.

10—Head well developed, the eyes convex and rather prominent..... 11

Head notably small, the eyes continuing its generally rounded outline; body smaller in size than in any other species..... 13

11—Depressions of the elytra strongly, closely punctured and also rugose; elytra narrowing posteriorly from slightly behind the middle, with the sides evenly and very evidently arcuate to the moderately obtuse tips. Body elongate-suboval, more convex than usual, coppery in lustre, the elevations blackish, the under surface shining, cupreous; head densely punctate, also with some smooth rugæ on its two large convexities, the latter separated by a broad and moderately deep groove; prothorax three-fifths wider than long, the sides parallel and somewhat sinuate, obtusely, subangularly rounded before the middle and thence strongly converging to the apex; sculpture nearly as in *georgiana* but with the sublateral impression behind the middle much shallower and more diffuse, the sublateral basal callus feeble; elytra about twice as long as wide, notably convex, the sides feebly serrulate posteriorly, the apices rounded; under surface in great part finely, rather closely but not densely punctate, the pubescence inconspicuous, polished and coarsely, sparsely punctate medially as usual. Length (φ) 26.0 mm.; width 9.0 mm. Pennsylvania..... **fortis** Lec.

Depressions of the elytra rather more finely, densely punctate, not so rugose; elytra narrowing posteriorly in about apical third, with the oblique sides nearly straight toward tip, the apices transverse suturally..... 12

12—Body rather broad, moderately convex, dull cupreous, the raised parts black, the under surface brilliant æneo-cupreous; head nearly as in *fortis*; prothorax relatively smaller, one-half wider than long, nearly similar in form and sculpture, except that the sides are less prominently rounded before the middle, sometimes very evenly rounded from behind the middle to the apex; elytra evidently less than twice as long as wide, nearly as in *fortis* but less convex, the apex almost similarly obtuse; under surface nearly similar, except that the fine punctures laterally are denser, Length (σ) 23.0–25.0 mm.; width 8.0–8.8 mm. Canada (Ontario)..... **laurentica** n. sp.

Body broad, moderately convex, the depressions of the upper surface bright cupreous-red, the raised parts black; head and prothorax relatively smaller than in the preceding, the former nearly similar, the antennæ notably thick, the subapical joints (φ) but little longer than wide; prothorax smaller, shorter and more transverse, three-fifths wider than long, nearly as in the two preceding, except that the parallel sides are apt to be somewhat bisinuate behind the apical converging and rounding parts

and the sublateral impression and basal callus more pronounced; elytra distinctly less than twice as long as wide, much wider than the prothorax, the apex more acute than in either of the preceding, the sculpture similar; under surface with the sublateral areas of fine dense punctures smaller and more irregular among the smooth patches, and with the whitish pubescence much denser and more conspicuous, as usual decumbent but having also longer and more erect sparse hairs intermingled. Length (♀) 21.0 mm.; width 7.7 mm. Canada (eastern Ontario). [= *Buprestis liberta* Germ., and *borealis* Lap.-Gory].

liberta Germ.

- 13—Form somewhat as in *liberta* but narrower and more convex, the depressions duller cupreous-red, the elevations black, the under surface bright cupreous; head scarcely more than half as wide as the prothorax, less coarsely and more densely cupreo-punctate than in *liberta*, with narrower rugæ, the sulcus similar; antennæ (♀) less stout, the subapical joints much longer than wide; prothorax similarly transverse, relatively still smaller, the sides parallel and obsoletely bisinuate, gradually strongly rounding and convergent from near the middle to the apex; sculpture nearly similar; elytra nearly similar throughout but still notably wider than the prothorax, the sides before the middle more deeply sinuous, the depressions similarly finely, densely punctate and nearly even; under surface with similarly isolated patches of dense fine punctures, which however are only feebly and very inconspicuously pubescent. Length (♀) 18.0 mm.; width 6.8 mm. New York (north-ern).....*parviceps* n. sp.

It will be observed that in the above statement some ten American species are considered valid, together with several subspecies, while, in the general catalogue of the Buprestidæ, Captain Kerremans has listed only three, since *fulleri* belongs to *Texania* and not to *Chalcophora*. This considerable increase of species, so material in fact that it may be criticized as unwarranted, is due principally to two causes: first to the fact that a number of species, long established, have been hastily and erroneously suppressed in the catalogue mentioned, *angulicollis* and *oregonensis*, for example, having the elytra proportionally much more elongate than *virginiensis* and without the sutural spine of that species, being abundantly distinct and not synonyms as there enrolled. Then again a number of forms have been discovered since the genus was investigated by LeConte about fifty years ago, so that it is believed the actual increase of synonymy will at least not prove burdensome.

The prothorax in *Chalcophora* is generally more prominent or subangulate at the sides before the middle in the female than in the male, as plainly observable in a series of *virginiensis* before me, in

some individuals of which the sides are not even notably prominent in anterior rotundity, while in others there is a distinct angulation; the character is, at best, rather inconstant and unreliable as a specific criterion. The synonym *obscura* Fitch, recorded originally by LeConte under *virginiensis*, and later repeated by Kerremans in the form "*obscurata*," I have been unable to find in the quoted article by Dr. Fitch. There is, to be sure, a variety suggested by that author in the running text of his article, but it is not *obscura*, and, being unrecognizable, it were better that it lapse and be not perpetuated in synonymy.

Texania n. gen.

The more densely punctate antennal joints, forming one of the structural differences between this genus and *Chalcophora*, was noted without further comment by LeConte, but that author failed to observe the large and well developed antero-internal sensory fossa of the outer joints, which are wholly obsolete in that genus; this, with the character mentioned, alone necessitates the generic separation from *Chalcophora* of *Buprestis campestris* and other allied forms. In addition, however, there are three other distinctive structural characters of importance distinguishing the two genera. The first of these supplemental characters relates to the general sculpture of the upper surface of the body, the pronotum having a narrower, deeper and undivided median sulcus, and the more coarsely punctato-rugulose elytra have very shallow, irregularly rounded areolæ, more or less interrupting the continuity of a few fine uneven longitudinal nervures. The second differential character results from the complete coalescence or disappearance of the prosternal sulci of *Chalcophora*, to form a feeble pubescent impression in the male or simply a flattened surface in the female, and the third refers to the very strong and acute serration of the sides of the elytra posteriorly, which, however, is not always so developed as in the type, becoming much feebler, though always distinct, in such species as *fulleri* and *bisinuata*. At the same time, the affinity of *Texania* with *Chalcophora* is strongly expressed by the general structure of the head and prothorax, as well as by the form of the triangular incisure at the abdominal apex of the male. Kerremans separated a genus *Chalcochorella* from the European representatives of *Chalcophora*, but, from all information available at present,

it cannot be identical with *Texania*, although seemingly a valid genus and not a subgenus of *Chalcophora*.

The species known to me are not very numerous and may be distinguished as follows:—

Species of smaller size and narrower form, the pronotal sulcus narrow and deep, the serration of the elytral margins posteriorly very strong and conspicuous..... 2

Species of large size, broader and more depressed form, the pronotal sulcus broad and shallow, the elytral serration much feebler..... 3

2—Body narrow, elongate, moderately convex, shining, with feeble obscure greenish lustre, nearly glabrous, the under surface brighter cupreous and with stiff, sparse and inconspicuous decumbent hairs; head rather small, the front nearly flat, coarsely and confusedly punctate and rugose, the median line finely grooved, with a small oval pit between the posterior parts of the eyes, the latter moderately prominent; antennæ not attaining the thoracic base in either sex; prothorax trapezoidal, from a little less (♂) to somewhat more (♀) than one-half wider than long, the sides sensibly converging and feebly, subevenly arcuate throughout, the basal angles slightly everted, acute and prominent; surface with the sulcus entire, deep and acutely excavated, confusedly punctured and rugose broadly toward the sides, with a deep sublateral impression behind the middle, the basal margin very feebly sinuate at the scutellum, the latter very small, rounded; elytra slightly wider than the prothorax, a little more than twice as long as wide, parallel, the sides gradually rounding and converging behind in more than apical two-fifths, the conjoined apex feebly emarginate at the suture, the apices very narrowly sinuato-truncate; surface coarsely, feebly, unevenly punctato-rugose, with obscure longitudinal striæ between the pronounced nervures, the areolæ finely but sparsely punctate and shining; sterna and first ventral throughout deeply impressed (♂) or flattened to feebly concave (♀), the last ventral in the former with a large equilatero-triangular emargination, the under surface of the last dorsal appearing beyond the incisure, flat, densely punctate, puberulent and with a finely and strongly beaded free edge; legs and coxæ nearly as in *Chalcophora*. Length 22.0–24.0 mm.; width 6.7–7.8 mm. Missouri, Kentucky and Indiana. [= *Buprestis campestris* Say and *substri-gosa* Lap.-Gory]..... **campestris** Say

Body slightly broader, similarly convex, rather less shining, greenish in lustre, with short hairs particularly evident posteriorly, the under surface cupreous, with brilliant green reflection along the median parts of the sterna, the pubescence more evident than in *campestris*, the punctures laterally, as in that species, small and subevenly distributed, not in dense patches as in *Chalcophora*; head slightly larger but otherwise nearly as in *campestris*, though more evidently and broadly concave toward the median line throughout; prothorax more transverse, the sides nearly parallel for three-fifths from the base, there broadly

rounded and thence strongly converging and nearly straight to the apex, the median sulcus wider, less acute at the bottom, the sublateral impression much more feeble and more diffuse; elytra nearly similar in form and sculpture but more densely and rugosely punctate throughout, especially in the areolæ, the apices narrowly but more obliquely truncate, the sutural angle prominent and acute; male sexual characters similar; tarsi more metallic green in lustre. Length (σ) 23.0 mm.; width 7.2 mm. Pennsylvania **serriger** n. sp.

- 3—Form oblong, depressed, dark bronze above, feebly shining and sparsely pubescent in patches; head coarsely punctate, deeply, longitudinally grooved; prothorax broader than long, the sides obtusely angulate medially, oblique anteriorly, subparallel behind, feebly sinuate before the hind angles, which are moderately prominent; apex feebly emarginate, the base bisinuate; surface with a broad vague channel medially and a moderately deep longitudinal impression sublaterally, coarsely rugulose at the sides, smoother medially; elytra oblong, depressed, parallel, gradually narrowed and moderately serrate at the sides in apical third, the apex obtuse; surface with four vague nervures, the latter with thickened spaces which surround large but very vague foveæ [areolæ], the nervures feebly shining, the intervals opaque, rugulose, sparsely punctured and with very short pubescence; under surface similar in color to the upper, irregularly and coarsely punctate, with spots of denser and finer punctuation. Length 27.5 mm. Texas. [= *Chalcofphora fulleri* Horn] **fulleri** Horn

Form stout, very moderately convex and not very shining, with a pronounced metallic green lustre above, each puncture with an extremely small hair, which is more developed in the male; under surface cupreous and polished along the middle, greenish and duller laterally, the punctures fine and dense laterally, with numerous small smooth patches, the pubescence extremely minute and inconspicuous (♀) or longer, dense and very distinct (♂); head moderate, densely and coarsely punctatopunctate, narrowly excavated along the median line, with a small deep fovea nearly as in *campestris*; antennæ apparently longer in the female than in the male but not attaining the thoracic base; eyes moderately prominent; prothorax fully two-thirds wider than long, the sides parallel and evenly bisinuate to well before the middle, there obtusely angulate and thence strongly convergent and straight to the apex; base but feebly impressed at the scutellum; surface finely, sparsely punctate medially, coarsely and rugosely laterally, the median sulcus very broad, deeper and more densely punctulate anteriorly, becoming gradually obsolete basally, with the median line deeper just before the basal margin, the large sublateral impression, just behind the middle, feeble and indefinite; elytra about twice as long as wide, evidently wider than the prothorax, parallel, the sides rapidly converging, arcuate and slightly serrate in apical third, the apices cupreous, narrowly oblique, with the sutural angle produced and acute; surface somewhat finely, closely punctatopunctate throughout and similarly so and equally shining and puberulent in and outside of the areolæ, the nervures not as prominent

as in *campestris*, the sexual characters of the under surface nearly similar. Length (σ , ♀) 25.0-30.0 mm.; width 8.5-10.8 mm. Texas.

bisinuata n. sp.

Form broader and less parallel than in *campestris*, the size larger, the pronotal sulcus broader and more shallow, visible for only three-fourths of the length and having a slightly flattened elevation near the anterior margin; prothorax more "triangular," the elytra more dilated. Louisiana (near New Orleans). [= *Chalcophora langeri* Chev.]. . *langeri* Chev.

The species *langeri* Chev., is of rather uncertain tenure; the few lines of description given above are drawn from information furnished LeConte by Chevrolat himself and printed in the Monograph of the former author. It apparently cannot be the species described above under the name *bisinuata*, neither does it seem to be the *fulleri* of Horn. The description of the prothorax as triangular is rather indefinite, fitting *campestris* better than any other, but the characterization of the thoracic sulcus will not at all apply to that species.³ I have therefore appended it provisionally as above and until further material from Louisiana can be collected, for as yet we certainly do not know all concerning the fauna of that section of the country. There are probably a number of species of *Texania* in Texas and territory immediately adjacent, which region appears to be its proper centre of dispersal. All the species of *Texania* seem to be more or less rare in collections.

Buprestis Linn.

Ancylocheira Esch.; *Anoplis* Kirby.

The species of this genus are properly holarctic in range, some tropical and Australian forms now attached belonging in reality to other genera; they are numerous and troublesome to separate with certitude, because of considerable variation in form, size and sculpture within specific limits; many of them also are rare or local. It is possible, however, by careful study of large series, to become sufficiently familiar with the laws of intraspecific variation, to be tolerably sure in

³Such evidence as we have shows beyond doubt that *langeri* is a species of the *fulleri* type, and that the probability is that the expression "prothorax more triangular" refers to the very patent fact that the sides of the prothorax are more angulate than in *campestris*. It may be therefore that either *fulleri* or *bisinuata* is a synonym of *langeri*. Or perhaps both *fulleri*, which I have not seen, and *bisinuata* may prove to be varietal forms or synonyms of *langeri*.

the taxonomic assignment of those forms represented by single examples, although of course mistakes under these circumstances may readily occur. Difficulties of this kind, nevertheless, scarcely warrant such carelessly sweeping opinions as that put forth by Crotch, in surmising that all the immaculate forms allied to *maculativentris*, constitute a single species, for this is certainly very far from being true. It is also most improbable that there can be the transitions between *lineata* and *maculipennis* hinted at by LeConte, as apparently proved, at any rate, by the large series at hand.

The genus *Buprestis*, as represented by *octoguttata*, which was suggested by Kerremans as the type to be definitively adopted and to which no valid objection can apparently be advanced, includes a wide range of bodily habitus, but the elytra are regularly striate throughout, without the faintest indication of such irregularities as the depressions or areolæ of the preceding genera, and this would seem to be the most important general distinguishing character of *Buprestis* within this group having the outer antennal joints elongate, more narrowed toward base, inferiorly punctate and with a distinct antero-internal sensory fossa. The frontal margin is always broadly sinuato-truncate, the antennæ inserted in triangular cavities which are generally accentuated internally by the moderate though clearly defined oblique ridges; the latter, however, become obsolete in *langi*, *rufipes* and related forms. The labrum is usually wholly pale and coriaceous, but in *langi* and allies it becomes partially corneous and metallic in lustre; it seemed at first as though this disparity in labral structure might form the basis for subgeneric division, but as it would have placed two such very similar species as *rufipes* and *elongata* in different subgenera, it evidently fails to have any such value. The pronotum generally has a smooth and punctureless, more or less embossed median line, but in *langi* and other similar forms it is wholly devoid of this character, the surface being feebly impressed and more punctured along the median line. The prosternum and first ventral segment may be impressed to strongly sulcate, or without trace of impression and with pronounced even convexity. The legs are slender, the basal joint of the hind tarsi more or less considerably elongate, and the anterior tibiæ of the male may have a strong reflexed spine internally near the tip or betray no vestige of any such structure. The abdominal apex is more or less truncate in both sexes, though, as

in *confluente*, sometimes more deeply sinuate in the male, but these secondary characters are very inconstant and liable to mislead, so that they are generally not referred to in the descriptions. The integuments are always virtually glabrous, shining and frequently metallic in coloration, though sometimes deep black, some species being among the more lugubrious of this highly metallic family; some are maculate with flavate in diverse patterns and others unicolorous.

The species and subspecies represented in my collection, or assignable with some degree of certainty from published descriptions, may be identified by the following tabular statement:—

Male with the anterior tibiæ deeply sinuate within beyond the middle and with a strong reflexed subapical spine internally; pronotum never impressed along the median line.....	2
Male with the anterior tibiæ unmodified; pronotum frequently impressed along the middle.....	29
2—Prosternum flattened, sometimes feebly impressed along the median line, the first ventral segment always sulcate medially.....	3
Prosternum broadly, evenly convex, the first ventral never more than feebly impressed along the middle; elytra with finely comminuted maculation, the striæ and intervals subuniform throughout the width.....	28
3—Elytra each with two brick-red vittae, sometimes more or less disintegrated, the inner much abbreviated. Body elongate-fusiform, convex, black, generally with feebly æneous or cupreous reflection, less marked on the elytra; head about as wide as the thoracic apex, rather finely, densely punctate, less densely and more coarsely anteriorly and in a posterior interocular tumescent transverse area, having (♂) an anterior arcuate and irregular and a post-median transverse pale fascia, or (♀) usually two or four small apical and two juxta-ocular spots; antennæ slender; prothorax nearly three-fourths wider than long, strongly trapezoidal, the sides nearly straight, sometimes slightly inflated basally, generally linearly pale at the lateral and apical margins toward the angles, rather coarsely, subevenly and not very densely punctate, with a slight impression before the scutellum; elytra but little wider than the prothorax, three-fourths longer than wide, the sides gradually rounding and oblique in posterior two-fifths, the apices transversely truncate with spiculate inner and outer angles, the truncature also feebly and irregularly microspiculose; striæ moderate, finely punctate, the intervals but feebly convex, more coarsely punctate, almost uniform throughout, the fourth and especially the sixth notably broader basally and more punctate; under surface shining, distinctly punctate, the last ventral with a small red spot near each anterior angle. Length 12.2–17.0 mm.; width 4.8–6.7 mm. North Carolina, Florida and Louisiana.....	lineata Fabr.

Elytra each with four flavate spots arranged longitudinally and subequally

- spaced, the spots not interrupted in continuity by the striae, though sometimes divided and forming two or three spots, one or all of which may become obsolete, the two or three anterior spots frequently united between themselves longitudinally and internally 4
- Elytra each with four large flavate spots or narrower bands, which are discontinuous, being interrupted at the striae; abdomen with four series of pale spots, generally obsolete in the males 11
- Elytra immaculate 16
- 4—Body smaller, more fusiform, the prothorax subevenly trapezoidal and almost evenly punctate, nearly as in *lineata*, the elytral apices truncate, feebly spiculose and bidentate, the strial intervals nearly flat and almost equal. Atlantic regions 5
- Body larger, more elongate, the prothorax trapezoidal but strongly swollen at the sides basally and with more irregular sculpture; elytra evenly truncate at tip, with the outer angle obtuse to feebly dentate; elytral intervals alternately strongly convex. Western North America 9
- 5—Second and third spots of the elytra when present always strongly and outwardly diverging, approximate and generally united at their bases. 6
- Second and third elytral spots nearly transverse, widely separated longitudinally even internally, the spots generally large, fully formed and not at all comminuted 8
- 6—Larger as a rule or stouter and with a larger head, more southern in habitat, the ante-coxal plate of the metasternum generally bimaculate medially. Rather stout, convex, shining, black with feeble æneous lustre; head (♀) well developed, rather coarsely, somewhat unevenly punctate, the eyes moderate, widely separated, bordered internally with orange-red, which becomes transverse superiorly, the front also with two anterior spots and a central detached vitta of the same color; antennæ slender, not attaining the thoracic base; prothorax three-fifths wider than long, evenly trapezoidal with straight sides, the apex transverse, broadly arcuate medially, the base bisinuate as usual; punctures rather coarse, unevenly sparse medially, closer laterally; scutellum rounded, flat, polished and metallic; elytra less than twice as long as wide, the sides gradually rounded and oblique posteriorly, though feebly arcuate, to the apical truncature, the striae strong, closely punctate, the intervals more coarsely punctate, nearly flat, alternately narrower with a single series of punctures and slightly broader with the punctures somewhat closer and more confused; flavate spots small and much disintegrated; abdomen coarsely, closely and conspicuously punctate, the basal sulcus rather deep, continuing virtually to the segmental apex, the last segment with a transverse orange-red spot at each side near the base. Length (♀) 15.0 mm.; width 5.85 mm. Florida.
- maculipennis** Lap.-Gory
- A—Similar to *maculipennis* but narrower and relatively more elongate, the head (♀) fully as developed, with rather prominent eyes, the lower flavate margin along the latter interrupted at the middle and not extending upward as far as the middle of the eyes, also with two

small frontal spots, the posterior spots seldom and only sporadically indicated, the antero-inferior thoracic and two anterior marginal transverse spots of the prosternum less developed; elytra narrower, with similarly small, sparse and very broken pale maculation; under surface with bright metallic lustre, the abdominal punctures rather strong but sparser, the orange-red spot at each side of the last segment more posteriorly oblique inwardly, sometimes almost obsolete. Length (♀) 12.7-13.5 mm.; width 4.8-5.4 mm. North Carolina (Southern Pines)..... **deficiens** n. subsp.

- B—Form shorter, stouter and less convex, not so shining or metallic above, the under surface dark subcupreous; flavate border of the eyes (♀) extending upward to the middle of their inner margins, without other pale frontal marking in the type; prothorax nearly as in *maculipennis*, the elytra shorter and broader, two-thirds longer than wide, the flavate spots large, solid and complete, the first and second united, the external part of the latter curving forward externally, enveloping the humeral callus and virtually attaining the base, the third touching the second internally and similarly strongly though posteriorly oblique, the fourth small and subapical; abdomen nearly as in the two preceding but less strongly punctate, the lateral spot of the last segment obsolescent. Length (♀) 14.0 mm.; width 5.9 mm. Virginia (Cape Henry)..... **fusiformis** n. subsp.

Smaller and more boreal in habitat, the head notably smaller in size, the ante-coxal plate of the metasternum apparently very seldom maculate with paler tint.....7

- 7—Abdomen narrowly and rather deeply sulcate at base as usual, with smaller, sparser punctuation; pronotum without well defined and more convex impunctate areas. Body narrowly fusoid, convex, shining, feebly subæneous; head rather small, the eyes not very prominent, the lower yellow stripe along the eyes terminating at their lower third (♀) or with this border ascending to the upper part of the eyes, bisinuate within and transversely, inwardly prolonged at its upper end, with a large anterior anchor-shaped spot (♂); prothorax nearly as in *deficiens* but more transverse, the elytra nearly as in *maculipennis*, with the flavate spots more or less disintegrated; abdomen with the transverse lateral spot frequently wholly obsolete. Length (♂, ♀) 9.5-14.0 mm.; width 3.8-5.5 mm. Massachusetts, Pennsylvania (Hazleton) and Indiana. **inconstans** Mels.

- A—Form more evenly fusoid, the head (♀) still rather smaller, with the inferior yellow line along the eyes and two small anterior spots; prothorax similar, except that the sides are more converging from base to apex; elytra similarly striate but with the sides posteriorly more evenly arcuate to the truncature and not straight or even feebly sinuate, as they generally are in *inconstans*; maculation more complete, nearly as in *fusiformis*; abdomen more finely and feebly punctate, the ante-coxal plate of the metasternum feebly bimaculate in the type. Length (♀) 12.2 mm.; width 5.0 mm. Michigan.

scripta n. subsp.

Abdomen at base narrowly, very feebly impressed along the flattened median line and coarsely, very densely and conspicuously punctured throughout; pronotum with some distinct impunctate callous areas. Body very small, narrowly fusoid and convex, colored and sculptured otherwise as in *inconstans*, the head (♀) very small, with the eyes not prominent, having a small pale spot adjoining the lower limb of the eyes; prothorax shorter and more transverse, at base nearly twice as wide as long, the ante-scutellar impression unusually deep and very distinct; elytra as in *inconstans*, the sides arcuate posteriorly to the truncature; last ventral without trace of maculation in the type. Length (♀) 10.7 mm.; width 4.2 mm. New York (Adirondack Mts.)..... **reducta** n. sp.

8—More elongate, fusiform and less convex than in the preceding forms, the maculation orange-red; head (♀) as in *inconstans*, or (♂), with the entire anterior part solidly pale, excepting two small black points, the pale area deeply, angularly biemarginate posteriorly; prothorax nearly to quite twice as wide as long, almost as in *inconstans*; elytra gradually becoming oblique posteriorly but with the sides feebly arcuate to the truncature, striate nearly as in *inconstans*, but with the punctures of the intervals less coarse, the second interval from the side margins more prominently convex; abdomen sulcate as usual at base, not very coarsely but strongly, moderately closely punctate, the spots of the last segment very strongly, inwardly oblique. Length (♂, ♀) 11.0–14.5 mm.; width 4.2–5.6 mm. Michigan and Missouri.

leporina n. sp.

9—Body black-bronzed, polished; under surface with a few pale decumbent hairs; head confluent punctured, with several irregular confluent smooth spaces; labial palpi, spot on the mandibles, labrum, lower margin of the eyes and some frontal spots yellow; prothorax bisinuate at apex and base, coarsely punctate, with several smooth spaces, the lateral margin except basally, and part of the apical margin yellow; elytra slightly furrowed, the furrows punctured, the intervals alternately convex and plane, the sutural interval convex, forked at base, the flat intervals most punctured but the convex the more coarsely; surface with three equidistant and irregular yellow spots, arranged longitudinally, and, nearer the base on the second ridge, there is a line of confluent yellow dots; apices truncate; abdomen having a triangular orange-colored spot at the sides of each segment, those on the last segment larger and irregular, the coxæ also and under sides of the thighs are partly of the same color. Length 15.0–16.0 mm. British-America (Latitude 65° and in the Rocky Mountains)..... **nuttalli** Kirby

Body black; abdomen with two widely separated series of small pale spots at each side; coxæ and femora only extremely rarely exhibiting any paler maculation..... 10

10—Form oblong-oval, moderately convex, deep black, without metallic coloration above, feebly metallic beneath; head wholly bright orange, with two rounded central black spots arranged transversely, the posterior line of the pale area, between the upper limits of the eyes, with a large median transverse sinus, the punctures generally well separated

(♂), or more densely and irregularly punctate, black, with orange maculation along the eyes and with two or three small anterior spots (♀); prothorax trapezoidal, swollen laterally toward base, three-fourths wider than long, the anterior and lateral margins near the apical angles pale (♂), or with merely a spot under the angles pale (♀); surface rather coarsely, sparsely punctate, with several large irregular smooth areas sublaterally and a broadly smooth median line, finely striate subbasally; elytra three-fourths longer than wide, the sides parallel and nearly straight for two-thirds, thence oblique, becoming nearly straight to the apices, which are simply transversely truncate (♀), or obliquely so with the sutural angles more prominent (♂); surface with deep but finely and very obscurely punctate striae, the intervals strongly convex and very sparsely, not coarsely punctate, alternately only slightly more so, except the sixth and eighth which are decidedly less convex and more punctate though not densely, the former greatly broadening over the humeral swelling, the reddish-flavate spots two and three alone well developed, vaguely subquadrate and feebly, divaricately oblique outwardly, the first spot small, more internal and generally comminuted, the fourth small and sometimes obsolete; under surface sparsely pubescent, variably punctate, the abdomen deeply sulcate basally, the four spots of the fourth segment subequidistant (♀), or with the two median very approximate (♂). Length 16.5–18.5 mm. width 6.4–6.9 mm. New Mexico (unrecorded locality and Fort Wingate)..... **alternans** Lec.

A—Form nearly as in *alternans* but much larger, with the elytra more gradually narrowed and more produced posteriorly, the eyes rather less prominent, the prothorax more inflated and rounded laterally in nearly basal half, the sides thence more converging and straighter to the apex. Length (♀) 20.0 mm.; width 7.7 mm. Arizona (Walnut)..... **conicicauda** n. subsp.

Form much more cuneate and more elongate, similarly convex, the upper surface generally with a faint greenish-metallic lustre; head (♂, ♀) respectively as in *alternans*, except that the transverse posterior margin of the solid binigronotate pale area of the former has a very small deep median sinus; antennæ (♂) scarcely attaining the thoracic base; eyes but slightly prominent; prothorax less transverse but otherwise nearly similar, with a much stronger impression before the scutellum; elytra generally more sinuate at the sides near the middle, gradually oblique posteriorly and slightly arcuate to the apical truncature, the outer angle more obtuse, blunt; surface nearly as in *alternans* but with the reddish-flavate pale spots much more developed, all four distinct, the first and second generally united and sometimes also the outwardly and divaricately but notably more strongly oblique second and third spots; abdomen deeply sulcate at base, finely and sparsely to rather strongly and more closely punctate, the pale spots frequently, and especially in the male, wholly obsolete, excepting two rather large and irregular on the last segment. Length 16.7–18.7 mm.; width 5.9–7.0 mm. California to Washington State. [= *Ancylocheira dilatata* Motsch., i litt. ?].

laeviventris Lec.

- A—Similar to *leviventris*, except that the abdominal surface is not polished but feebly alutaceous, the hind coxæ not uniformly black but with a transverse pale discal spot, and the large spots of the last segment not full and vaguely triangular but transverse, each with a slender vitta proceeding from the side posteriorly and extending parallel to the sides almost to the tip; prothorax more strongly and abruptly swollen at the sides in basal half. Length (♀) 21.0 mm.; width 8.0 mm. Washington State..... **pugetana** n. subsp.
- 11—Pronotum strongly impressed near each side just behind the middle. Body oblong-elongate, rather feebly convex, black, without distinct metallic lustre, the under surface with short sparse hairs; head densely punctato-rugulose, sparsely pubescent, with a narrow elongate callus medially and a fine stria thence to the base, the eyes moderate; front with anterior as well as juxta-ocular pale spots in both sexes; antennæ unusually thick; prothorax very nearly twice as wide as long, the sides inflated and strongly, evenly rounded in basal half, thence straight and converging to the apex, the latter and base strongly bisinuate; surface with the margins near the apical angles and a small elongate spot near the basal pale, the punctures coarse, close, dense and rugulose laterally, the four smooth vittæ very pronounced, the impression within as well as without the sublateral irregular vittæ distinct, the median vitta strongly striate along the middle except apically, the two anterior callous spots large and well defined; elytra parallel, the sides gradually rounding posteriorly to the wholly unextended apices, which are truncate and usually bidentulate, the surface with the alternate intervals perfectly flat, subopaque, finely and densely punctate, or very convex, polished, not more coarsely but very sparsely punctate, the four pale fasciæ broken into small elongate spots on the ridges; under surface with small pale spots on the prosternum, met-episternum, coxæ and along the under side of the femora; abdomen strongly punctate, sulcate at base, wholly immaculate (♂), or with a series of very small red dots along each lateral margin (♀). Length 17.5–20.0 mm.; width 6.8–7.7 mm. New Mexico..... **diruptans** n. sp.
- Pronotum not or feebly impressed sublaterally, the sides strongly swollen basally, thence converging and almost straight to the apex; elytra with the intervals equally polished throughout, the flatter and more convex not so unequal and sparsely, subsimilarly punctate, the pale fasciæ more developed, attenuate outwardly and interrupted only at the striæ, the second tending to curve forward anteriorly at the sides; apices always truncate, bispiculose and frequently very feebly, irregularly undulate; under surface with small pale spots on the sterna and coxæ and sometimes on the under side of the femora..... 12
- 12—Elytra unusually prominent at the sides near basal fourth and thence strongly sinuate to behind the middle; male with two small convexities in the apical margin of the second ventral, the median part of the segment flattened, with the coarse dense punctures streaming obliquely toward the two inequalities. Body black, without metallic lustre; head (♂) not coarsely but closely punctate, with a median and two

rather distinct oblique smooth lines, the median line of the occiput broadly smooth and concave; anterior half of the front yellow, with a posterior spur at the middle and two small anterior black points, also with a more posterior oblique spot near each eye, the latter large but not prominent; antennæ rather slender; prothorax small, moderately transverse, the sides arcuate basally, the apex broadly prominent and arcuate, only very feebly sinuate laterally; surface coarsely, closely punctate, with pale margins and impunctate areas as in *diruptans*, the sublateral smooth vitta partially interrupted by a small deep foveiform impression; elytra much wider than the prothorax, strongly cuneate from the base, broadly rounded and subprominent laterally behind the middle, the sides thence rapidly oblique, becoming subsinuate to the apex; under surface strongly punctate; femora and abdomen without pale spots, except a small one at each side of the last segment. Length (♂) 17.0 mm.; width 6.3 mm. Washington State (Tacoma).

contorta n. sp.

Elytra subparallel, not very prominent subbasally and but feebly sinuate laterally, the second ventral unmodified in the male.....13

13—Basal inflated part of the prothorax with the sides broadly rounded. Pacific regions.....14

Basal inflation more abrupt, angulate or tumescent, the head, pronotum and under surface more cupreous. Atlantic regions.....15

14—Form oblong, parallel, only moderately convex, shining, colored as in *contorta* and with the general characters similar, except that the head and prothorax are relatively larger (♂), the latter almost as wide as the elytra, the head nearly similar in sculpture and ornamentation, except that the upper pale spots near the eyes are less oblique and less posterior; eyes rather small and not at all prominent; prothorax with the apical margin even more strongly and prominently arcuate medially, the callous smooth areas similar, the small impression on the outer side of the sublateral vitta less marked; sides near the base less broadly prominent than in the two following forms; elytra but three-fourths longer than wide, very rapidly oblique behind in less than apical third; under surface strongly but not densely punctate, shining, with the usual sternal and coxal pale spots, the femora with an elongate pale spot beneath, the abdomen with a pale spot at each side of the basal sulcus and another transverse at each side of the last segment. Length (♂) 17.8 mm.; width 7.4 mm. California.....**gravidula** n. sp.

A—Nearly as in *gravidula* throughout though a little narrower, the head (♂) with larger and much more prominent eyes, the median line and two lateral discal spots smooth, the pale area confined to the entire apical margin, running along the eyes from above the middle to the base of the head beneath, the median posteriad pale spur long; prothorax similar; elytra more elongate, more gradually and less strongly oblique at the sides posteriorly in apical two-fifths, feebly arcuate even near the apices; under surface nearly similar, the femora and abdomen without pale spots, except a slender oblique line at each side of the

last segment; basal joint of the hind tarsi long as usual in this group, almost as long as the next three combined. Length (♂) 17.8 mm.; width 6.8 mm. Washington State. *torva* n. subsp.

B—Nearly as in *torva* but still more elongate, the elytra nearly twice as long as wide, with the sides similarly gradually rounding and oblique in posterior two-fifths but becoming nearly straight to very feebly sinuate near the apices; head (♀) as in *gravidula*, having the anterior margin throughout the width, sometimes broken into four spots, pale; prothorax as in that form but with feebler indication of impression interrupting the sublateral smooth vitta; elytra sculptured as in *torva*, the flatter intervals rather more punctate than in *gravidula*; abdomen with the four lines of pale spots well developed (♀), with numerous pale spots on the sterna and coxæ and one on the under side of the femora, the spots of the two inner abdominal lines larger than those of the marginal lines. Length (♀) 17.3–19.7 mm.; width 6.2–7.8 mm. Colorado (Boulder Co.) . . . *boulderensis* n. subsp.

15—Form nearly as in the preceding, the size much smaller, the coloration and sculpture almost similar; head (♂) densely punctate, the callous areas very small and inconspicuous, the occiput impressed along the median line; front yellow in anterior half, except a sinus above each antenna and generally two rounded discal points, the yellow area with a short posteriad median prolongation, the spot near the upper part of each eye distinct to wholly obsolete; eyes somewhat prominent; prothorax with the sides at two-fifths from the base subangularly protuberant, the apical margin broadly bisinuate; sculpture and ornamentation as in *gravidula*, except that the impression near the outer smooth vitta is wholly obsolete; elytra as in the preceding forms gradually oblique at the sides posteriorly, sometimes feebly sinuate toward the apices; under surface and sometimes the femora inferiorly spotted with flavate as in the preceding; abdomen strongly punctate, narrowly sulcate at base, generally with a pale spot at each side of the sulcus, the other spots nearly obsolete (♂), the single spot at the centre of the fourth segment, forming the apex of the two inner series, generally visible, the last segment with a biramose spot at each side, which is however frequently wholly obsolete. Length (♂) 13.5–16.7 mm.; width 5.0–6.0 mm. Lake Superior (Duluth and Bayfield) *flavopicta* n. sp.

Form notably narrower and relatively somewhat more convex, the pale broken fasciæ of the elytra larger, almost always longitudinally confluent near the suture; general coloration and sculpture similar; head smaller, less densely punctate and not so evidently pubescent, similarly ornamented; prothorax similar but less transverse, the sides less angularly tumid and at basal third, thence to the base frequently with an intermediate sinus; elytra somewhat more produced at tip, with the sides toward the apices more evidently sinuate, the apical truncature transverse as usual, finely bidenticulate; under surface nearly similar but with less evident ashy hairs, the abdomen more sparsely and evidently less strongly punctate as a rule. Length (♂) 13.5–14.2 mm.; width 4.8–5.2 mm. Pennsylvania and New York to Michigan.

consularis Lap.—Gory

- 16—Abdomen with four series of pale spots; body convex and fusiform, generally with rather distinct green or violaceous metallic lustre. 17
- Abdomen with a single series of pale spots at each side. 21
- 17—Pronotum strongly declivous laterally, the side margins and apical angles not visible from above. Form elongate, convex, the lustre polished, feebly violaceous, more evidently so beneath; head strongly and not very densely punctate, the median line narrowly smooth anteriorly but without other callous spots, the eyes (♀) margined internally throughout with an internally bisinuate red border, the front also with two anterior elongate red spots; eyes rather prominent; antennæ moderate; prothorax three-fourths wider than long, unusually parallel, the medially subprominent apex fully three-fourths as wide as the base, the sides evenly converging from base to apex, evenly and feebly arcuate; surface evenly convex, with an oval orange spot at the sides of the apex, coarsely, generally sparsely and unevenly punctate, having sub-lateral areas and the median line impunctate, the latter with a small deep basal puncture; elytra but little wider than the prothorax, twice as long as wide, parallel, the sides very gradually rounding and converging in apical two-fifths, the apices rounded, transverse toward the suture, the latter scarcely prolonged; surface with the intervals alternately wider, moderately convex and sparsely punctate and narrower, flatter and more closely punctate; under surface strongly punctate, the abdomen less densely, shining, wholly immaculate excepting two small rounded red spots at each side of segments two to four and one transverse near each side of the fifth, sulcate basally. Length (♀) 17.8 mm.; width 6.8 mm. Colorado (?)—Cab. Levette.

rubronotans n. sp.

- Pronotum not strongly declivous laterally, the side margins and apical angles visible from above. 18
- 18—Prothorax much narrower than the elytra, the sides not continuous. Body less convex, polished, the anterior parts feebly, the elytra strongly metallic green, the under surface violaceous; head (♀) as in the preceding but with the eyes less prominent and with more developed pale orange marking, the latter completely enclosing the front except at the middle posteriorly; prothorax two-thirds wider than long, trapezoidal, the sides evenly converging throughout, very feebly arcuate except apically, the margins antero-laterally orange-red; surface coarsely, closely, unevenly punctate, tumid submedially near each side, with but few small irregular callous spots, the median line uneven, impunctate, feebly striate medially toward base but without distinct sub-basal puncture; elytra three-fourths longer than wide, two-fifths wider than the prothorax, the sides feebly converging and broadly sinuate, becoming somewhat gradually rounded and oblique, then nearly straight to the rounded apices, the sutural angle dentate; surface nearly as in the preceding but with much less unequal intervals either in width or in their generally feeble convexity; under surface less punctate, the polished abdomen finely and sparsely so, the spots orange, those of the

inner series large and transverse, the external small but uniting with the inner on the subapical segments, those of the last segment very large, extending nearly to the apex but not transversely confluent. Length (♀) 16.8 mm.; width 6.8 mm. Montana... **adonea** n. sp.

Prothorax at base almost as wide as the elytra, the sides almost a prolongation of those of the latter, which are similarly rounded or obtuse at tip, with the sutural angle dentiform; surface shining, greenish to violaceous metallic, the anterior thoracic angles pale as usual. 19

19—Abdomen polished, very finely and sparsely punctate. Body nearly as in *adonea*; head (♀) sparsely, irregularly punctate, solidly pale between the entire inner margins of the eyes, excepting the small antennal sinuses and two large and two minute discal central spots, the transverse hind margin of the pale area with a quadrate median emargination; eyes moderate; prothorax evenly trapezoidal, with the sides nearly straight or very faintly biarcuate, the apex rather prominently rounded medially; surface broadly tumid sublaterally except near the apex, coarsely, rather closely and irregularly punctate, with but small and badly defined smooth spots, the median line impunctate but not tumid, unipunctate basally; elytra three-fourths longer than wide, nearly as in *adonea* but with more evidently unequal intervals; orange spots of the inner and outer abdominal series moderate, generally transversely united, those of the last segment transverse but not meeting medially and each prolonged posteriorly along the margin for a short distance. Length (♀) 17.0 mm.; width 6.9 mm. Utah (Stockton)... **histrion** n. sp.

Abdomen more closely, more or less strongly and conspicuously punctate though somewhat variably so as usual. 20

20—Form rather broad, only moderately convex, shining, dull metallic green to violaceous; head (♀) strongly but not very densely punctate, the back part of the front between the upper part of the eyes less punctate and medially feebly impressed, the front surrounded broadly with orange-yellow, which is sometimes solid excepting two median spots; eyes feebly convex, not prominent; prothorax trapezoidal, two-thirds wider than long, the sides broadly, very feebly biarcuate; surface almost evenly convex, rather coarsely but unevenly punctate, with the usual impunctate areas sublaterally and a smooth median line, which is frequently striatulate along the middle posteriorly, the fovea subobsolete; elytra evidently less than twice as long as wide, parallel, rather rapidly rounding and oblique at the sides in apical two-fifths, the apices rounded, becoming transverse suturally, the sutural angle dentiform; surface with the intervals strongly alternating in convexity, sparsely and very inconspicuously punctate throughout, the subhumeral marginal cavity deep; under surface strongly, moderately coarsely and closely punctate, immaculate except the abdomen, where the four series of yellow spots are well developed, the two lateral transversely confluent subapically, the two large spots of the last segment not attaining each other medially. Length (♀) 18.0–19.5 mm.; width 6.8–7.4 mm. New Mexico (Fort Wingate), Colorado (Salida), Arizona (Grand Canyon of the Colorado) and Idaho (Cœur d'Alene—the color brighter æneous)... **subornata** Lec.

A—Nearly as in *subornata* but more elongate, more convex, with less unequally convex elytral intervals and with the sides of the elytra much more gradually rounding posteriorly and thence more gradually oblique and more evidently arcuate to the apices, the latter broadly rounding, very oblique thence to the strongly dentate sutural angles; head and prothorax nearly similar, except that the latter is less transverse, the elytra more elongate; abdomen similarly deeply sulcate along the median line of the first segment, coarsely, densely and very conspicuously punctate throughout, the spots as in *subornata* but deeper orange-red in color. Length (♀) 18.5 mm.; width 6.9 mm. Colorado (Boulder Co.) **punctiventris** n. subsp.

Form narrower than in *subornata* but only slightly more convex, shining, obscurely violaceous; head (♀) strongly but rather sparsely, irregularly punctate, similarly ornamented, the eyes rather more convex; prothorax nearly as in *subornata*, the punctures similarly sparse and irregular but smaller medially, the sides broadly arcuate in basal half, thence nearly straight or less arcuate to the apex, the punctures becoming relatively coarser and denser near the sides than in *subornata*; scutellum oblong, parallel, flat; elytra nearly twice as long as wide, almost as in *subornata*, except that the surface is more punctured, the punctures less fine; abdomen distinctly punctured but much less coarsely or closely than in the two preceding forms, the spots small, red, those of the lateral pairs not approaching each other transversely, the two of the last segment very different, being transverse, not at all ramate posteriorly along the margin and uniting on the median line to form a single transverse fascia. Length (♀) 17.2 mm.; width 6.5 mm. Kansas **violescens** n. sp.

21—Form nearly as in the preceding, elongate, fusoid and notably convex; elytra strongly longitudinally undulated medially 22

Form more parallel and notably less convex; integuments black, never with the marked metallic lustre of the preceding section, the elytra more even and less undulated 23

22—Body black-bronzed, punctured, glossy; head with a levigated elevation in the centre between the eyes, channeled behind, marked with two yellow spots beneath on the cheeks, a triangular one adjacent to the eyes on the inner side and two dots of the same color between them; prothorax coarsely punctate, with smooth spaces, the discal one longitudinal, with an ante-scutellar impression; sides converging at the base of the prothorax; anterior angles with a yellow stripe; elytra strongly furrowed, with numerous very minute punctures in the furrows, rounded at apex; interstices with scattered punctures, those of striæ 2-3, 4-5 and 8-9 elevated so as to form an obtuse ridge; four last ventral segments of abdomen having on each side a reddish-yellow spot, those on the last segment being the largest and most irregular; anus with two distinct lateral teeth. Length 18.5 mm. British America (Latitude 54°,—Kirby, and one specimen without more exact locality than "B. A." received from Chas. W. Leng); Washington State.

rusticorum Kirby

Body nearly as in *rusticorum*, of the same color, the head, anterior thoracic angles and abdomen similarly spotted, except that on the first there are no frontal dots; the prothorax however is differently shaped, being somewhat constricted anteriorly, with the sides toward base rounded; it is also channeled [referring without much doubt to the impressed stria, frequently observable toward base in many species]; the sculpture of the elytra is similar but they are more attenuated and truncated at the end, as in *rustica*, and armed with three minute denticles. Length 15.5 mm. British America (Cumberland House, Lat. 54°).

paganorum Kirby

Body much smaller and narrower than in *rusticorum*, polished, brighter bronzed, greenish or subcupreous; head moderate, densely punctate, with median and subposterior levigated spaces; eyes only moderately convex; prothorax three-fourths wider than long to nearly twice as wide as long, trapezoidal, the sides more or less inflated and broadly arcuate in rather more than basal half, the surface almost evenly convex, strongly but very unevenly punctate, coarsely and densely so laterally, more sparsely and less coarsely medially, with large sublateral smooth spaces and a distinct smooth median line which is generally finely, briefly striate at base; elytra but little wider than the prothorax, nearly twice as long as wide, gradually strongly oblique at the sides in apical third, the apices transversely truncate, the truncature sometimes irregular or finely spiculate, the outer angle obtuse, never dentiform; under surface strongly, closely punctate; lateral spots of the penultimate ventral segments very small and frequently subobsolete, those of the last segment obliquely linear, sometimes also posteriorly ramate along the margins but never meeting on the median line. Length (♂, ♀) 14.0-16.0 mm.; width 5.0-5.9 mm. New Hampshire, Vermont, Michigan, Wisconsin (Bayfield), South Dakota and Manitoba. [= *sexnotata* Lap.-Gory]..... **maculativentris Say**

23—Pale spots well developed at the sides of all the ventral segments as in the preceding group.....24

Pale spots wanting or greatly reduced at the sides of the abdomen, except on the last segment, where they are correspondingly more conspicuous, forming a large transverse red fascia..... 27

24—Prothorax very strongly narrowed anteriorly, the apex not more than two-thirds as wide as the maximum width. Body elongate, convex, black, the pronotum with very feeble cupreo-violaceous lustre; head (♀) densely punctate, the intercular surface in great part coarsely rugose, with the entire frontal margin, enclosing two black points and emitting a long posterior medial spur, pale yellow; also with a suboblique and more orange spot at the upper part of each eye, the eyes not prominent; antennæ rather long, extending fully to the thoracic base; prothorax nearly twice as wide as long, widest behind the middle, the sides evenly and strongly arcuate, becoming gradually very convergent and less arcuate anteriorly; surface with the usual antero-lateral yellow vitta, almost evenly convex, coarsely, densely

but unevenly punctate, with sublateral smooth spaces and a narrow and uneven impunctate median line; elytra long, but little wider than the thoracic disk, twice as long as wide, the subparallel sides very gradually rounding and oblique posteriorly, the apices rounded, with the sutural angle scarcely at all prominent; surface with the intervals alternately feebly and strongly convex, moderately punctate, rather coarsely and closely so and subrugose laterally; abdomen deeply and abruptly sulcate basally, rather strongly but sparsely punctate, the yellow spots distinct and subequal on every segment, larger and transverse though separated on the fifth. Length (♀) 19.5 mm.; width 7.0 mm. New Mexico (Cloudcroft) *acomana* n. sp.

Prothorax not so strongly narrowed and less rounded on the sides, the apex three-fourths to four-fifths as wide as the maximum width; elytral apices similar 25

25—Elytra oblique at the sides in fully apical two-fifths, more prolonged apically, the eyes rather more prominent. Body oblong, rather depressed, deep black; head (♀) coarsely rugose, with a large median area somewhat depressed and with a short callous median line, finely and densely punctate, the front with four anterior pale spots; epistoma medially unusually deeply sinuate; antennæ rather thick; prothorax short, almost twice as wide as long, the sides converging, evenly and moderately arcuate from just before the base to the apex, rounding in slightly at base; apex and base broadly bisinuate; surface coarsely and irregularly punctured as usual, the smooth median line with a striaform impression at base; scutellum longer than wide, metallic; elytra not quite twice as long as wide, scarcely at all wider than the prothorax, with the usual nearly flat, alternating with convex, intervals, the flat ones much the broader; punctures fine and sparse; abdomen rather strongly and closely punctate but not coarsely, the basal sulcus moderate, not quite attaining the apex of the first ventral; spots red, those of the fifth segment transversely subquadrate, widely separated. Length (♀) 18.0 mm.; width 7.0 mm. Kansas.... *morosa* n. sp

Elytra generally oblique in about apical third; eyes not prominent..... 26

26—Form rather more elongate and scarcely so depressed, black, sometimes with very faint greenish or violaceous lustre either on the elytra or pronotum, the former frequently dark piceous; head nearly as in *morosa* but with more yellow maculation, this sometimes solidly surrounding the median parts of the front though broadly open behind, the epistoma less deeply sinuate, the antennæ rather longer; prothorax much less transverse, three-fourths wider than long, the sides frequently a little more rounding basally, the sculpture coarse, nearly similar; elytra nearly similar, though a little more elongate and more evidently wider than the prothorax, the punctures larger, closer and much more conspicuous especially laterally; abdomen as in *morosa*, the pale spots of the last segment rarely coalescent transversely; male apparently very rare. Length (♀) 17.0–20.0 mm.; width 6.6–7.8 mm. Colorado,—Cab. Levette..... *fusca* n. sp.

A—Nearly as in *fusca* but shorter and more oblong, the head smaller but otherwise nearly similar, the eyes not at all prominent, the central punctuation less fine and rather less crowded, the antennæ somewhat thicker; prothorax more transverse, not quite twice as wide as long, the sides broadly, subevenly rounded, more converging but still arcuate anteriorly, the punctures rather sparser; scutellum rounded; elytra shorter, evidently less than twice as long as wide and not very evidently wider than the prothorax, otherwise similar; abdomen as in *fusca* but somewhat less strongly and decidedly sparsely punctate, the lateral yellow spots smaller throughout. Length (♀) 17.0 mm.; width 6.7 mm. Montana **sublivida** n. subsp.

Form nearly as in *fusca* but much smaller in size, shining black, the pronotum sometimes violaceous; head nearly similar but with less evident and much smaller central punctate area, the front yellow (♂), excepting two large posterior areas, or with the yellow area more contracted and broken into spots (♀); eyes slightly convex; antennæ rather long; prothorax nearly twice as wide as long to distinctly less; the sides sometimes slightly prominent near basal third but generally almost even; surface less coarsely and more densely punctate than in *morosa* though similarly irregular, slightly impressed sublaterally behind the middle; scutellum rounded; elytra not quite twice as long as wide, but little wider than the prothorax as a rule, sculptured as in *fusca*, with almost equally distinct punctuation though rather less strongly alternating intervals; abdomen shining, alutaceous, strongly, rather closely punctate, the orange lateral spots distinct, subequal, those of the fifth segment somewhat obliquely transverse, moderate, basal sulcus strong, the second segment also sometimes slightly impressed medially. Length (♂, ♀) 14.0–17.0 mm.; width 5.2–6.8 mm. Colorado (Boulder Co. and Ouray) and New Mexico (Albuquerque and Cloudcroft).

caliginosa n. sp.

27—Pronotum with four rounded impressions near the base, one on each side of the basal sublateral callus. Head rather small, densely punctate and somewhat impressed medially on the front, with several small smooth patches and with well developed yellow maculation, the eyes not prominent; antennæ rather slender; prothorax small, two-thirds wider than long, widest at basal third, where the sides are prominently rounded, thence rather strongly converging anteriorly and less strongly posteriorly and nearly straight; apex and base bisinuate; surface coarsely punctate, densely laterally, the sublateral smooth spots prominent, the smooth median line irregular, feebly striate basally; elytra almost a third wider than the prothorax, less than twice as long as wide, parallel, oblique but rounded at the sides in apical third, the apices truncate but with obtuse angles; surface with the equal intervals slightly alternating in convexity, the punctures sparse as usual but strong and distinct; abdomen strongly, rather closely punctate, narrowly sulcate at base; segments two to four each with a small lateral spot, the fifth with a large entire fascia which is sinuate at the middle of its anterior margin, arcuato-truncate at tip, with rounded angles. Length (♀) 16.7 mm.; width 6.5 mm. Montana **nigricans** n. sp.

Pronotum with a deep foveiform impression at each side of the median line before the middle but otherwise not distinctly impressed. Surface shining, greenish-black; head (♂) coarsely, densely punctate and partially impunctate, the entire space between the eyes yellow-orange, except a large median anteriorly and deeply incised black spot; eyes large but not prominent; antennæ slender; prothorax short, almost twice as wide as long, only moderately narrowed anteriorly, the sides subevenly rounded, a little more so basally, widest at about basal third; surface strongly, sparsely punctate, densely so laterally, the sublateral smooth spots coalescent, not prominent, with traces of the subbasal depressions of the preceding; anterior sides and lateral third of the apical margin pale; elytra nearly as in *nigricans* but only very slightly wider than the prothorax, the apices subtruncate and with feeble minute irregularities but with the outer angle obtusely rounded; surface strongly but not closely punctate, the intervals alternatingly rather wide, moderately convex, less polished and feebly rugose and narrower, strongly convex, smooth, less punctate and very lustrous, the arrangement very regular throughout the width; abdomen deeply sulcate basally, strongly, rather closely punctate, the third and fourth segments each with a very small red dot laterally, the fifth with two large transverse red spots, the apex evenly and distinctly sinuate with simple angles. Length (♂) 18.5 mm.; width 6.9 mm. British Columbia (Golden)..... *lyrata* n. sp.

Pronotum without evident impressions. Body large and elongate, shining, black or greenish-black to faintly violaceous in lustre; head nearly as in *lyrata*, sometimes with a larger finely and densely punctate medial area, the pale area surrounding the interocular surface nearly similar and frequently as well developed in the female as in the male; prothorax larger, much less transverse, generally but little narrower at base than at basal third, the sides more even thence to the apex, nearly straight or feebly arcuate, sometimes feebly biarcuate, but, in the male, sometimes subangularly prominent behind basal third; surface more densely punctate, with the sublateral smooth areas usually large though not prominent; elytra but little wider than the prothorax, generally fully twice as long as wide, the apices truncate to arcuato-truncate, nearly even, the sutural angle unusually evident for this section; surface nearly as in *lyrata* but less strongly punctate, the wider intervals more nearly flat and not so rugulose, the narrower less convex; abdomen strongly but not very coarsely, closely punctate, sulcate at base, the fifth segment with a large and generally entire transverse red fascia, the two or three preceding also sometimes with a small red dot at each side, the fifth broadly sinuate at tip (♂), or arcuato-truncate with obtuse angles (♀); females abundant, the male rare. Length (♂) 15.0, (♀) 18.0-23.0 mm.; width (♂) 5.8, (♀) 7.0-8.8 mm.; dimensions of one ♀ 23.0 by 8.3 mm., of another ♀ 22.0 by 8.8 mm.. Oregon, Idaho (Cœur d'Alene), Washington State and Vancouver Island). [= *rusticorum* Lec. nec Kirby]. *adducta* n. sp.

28—Form moderately elongate and subdepressed, vivid green above, the

elytra violaceous blue to green, varying with angle of light, thickly and uniformly, finely spotted with fulvous yellow, the spots more or less transversely confluent, a transverse band behind apical third, which is continued broadly on the suture to the apex, devoid of spots; under surface (♀) coppery with greenish reflection, without paler maculation, or (♂) having the median parts from the head to near the apex of the first ventral pale yellow, with a small yellow spot at each side of the fifth ventral; head (♀) without pale spots, rather coarsely, densely punctate, the eyes rather prominent, or (♂) very densely and more finely punctate; prothorax two-thirds wider than long, the sides evenly converging, almost evenly and moderately arcuate from base to apex; surface even, evenly convex, without impunctate areas, the smooth median line interrupted anteriorly, the punctures coarse, very dense laterally; elytra but little wider than the prothorax, parallel, nearly twice as long as wide, the sides gradually oblique in more than apical third, the apices obliquely rounded, the sutural angle not at all prominent; surface with equal, moderately convex, finely and sparsely punctate intervals, the striae closely and evidently punctate; abdomen very finely, sparsely punctate, the first segment narrowly flattened along the median line. Length (♀) 16.0 mm.; width 5.7 mm. Kansas (Edmond),—Warren Knaus. [= *confluens* Lec.] **confluenta** Say

- A—Nearly as in *confluenta* throughout, the arcuate elytral band free from maculae not prolonged posteriorly on the suture, the prothorax shorter, with the lateral punctures still more confluent, the impunctate median line entire, the side margins with a pale point at the apical angles and another near the base; head (♂) finely, very densely punctate and much more pubescent; last ventral (♂) with an entire transverse pale fascia from side to side near the base, the punctures stronger than in the female of *confluenta* and less sparse. Length (♂) 14.7 mm.; width 5.0 mm. Texas **tessellata** n. subsp.
- 29—Elytral striae more or less fine, with small, even, less close-set punctures. Atlantic regions, extending westward nearly to the Rocky Mts. 30
- Elytral striae sulciform, densely and more confusedly crenate, the intervals relatively narrow; median line of the pronotum generally more impressed. Pacific regions, extending eastward in the north as far as Lake Superior 34
- 30—Body very elongate, in great part pale beneath, the legs at least in part pale, the elytra each with an anterior vitta from the basal margin. . . . 31
- Body less elongate, without paler areas beneath, the legs always black with more or less metallic lustre, the elytra variously maculate with yellow. . . 32
- 31—Legs entirely pale in color. Body only moderately convex, shining, metallic green, the anterior parts frequently bluish to æneous; lateral parts of the sterna metallic green, the remainder of the under surface variegated with yellow and brownish-red, the latter prevailing on the abdomen, the former forming a broad but broken axial vitta from the head to the middle of the abdomen, apparently in both sexes, the sides

of the body beneath also with yellow spots, forming a broad fascia on the last ventral; head moderate, the eyes rather prominent, the front without pale spots, coarsely, closely punctate, with a prominent smooth callus along the median line centrally; antennæ slender, pale brown; prothorax two-thirds wider than long, but little narrower at apex than at base, the former truncate, the latter bisinuate; sides evenly, feebly arcuate; surface evenly convex, coarsely, not densely punctate, without smooth spots or median line but with a small fovea before the scutellum, the hypomera pale, the latter tint sometimes spreading more or less broadly to the dorsal surface; elytra about two and one-half times as long as wide, only just visibly wider than the prothorax, very gradually rounded and narrowed posteriorly behind the middle, the apices rather broadly sinuate and strongly bispiculate, each with a yellow vitta from just beyond the middle of the base for two-fifths or more, a transverse discal fascia at apical two-fifths and another still more posterior, the apices also pale; striæ impressed, punctulate, the intervals equal, moderately convex, becoming flat basally, finely, sparsely punctate; under surface finely, sparsely punctate, more strongly and closely laterally. Length (σ , φ) 17.5-21.0 mm.; width 5.4-6.7 mm. Pennsylvania, Indiana, Kentucky, Louisiana and Kansas..... **rufipes** Fabr.

A—Similar to *rufipes* but much larger and stouter, the head more developed, with the front much more convex, the eyes fully as large but not prominent, their contour following the general outline; scutellum equally well developed, flat, rounded; elytra with the sides much more rounding and converging posteriorly, the sinuate apices relatively narrower though strongly bispiculate. Length 23.0 mm.; width 7.4 mm. One specimen labeled "Cal." in Cab. Levette, but probably in error..... **virens** n. subsp.

Legs black and metallic bluish-green, the femora pale, with the upper side, a lateral streak and the tip metallic black, the anterior pale only on the under surface in basal two-thirds. Body rather less slender, shining, black to greenish-black, the under surface in great part pale; head coarsely, densely punctate, with a few callous smooth spots, a large, posteriorly cuneate median pale spot at apex and another at the lower part of each eye, the latter not at all prominent; antennæ black with feeble metallic lustre; prothorax as in *rufipes*, the sides broadly pale, with a dark vitta on the hypomera; scutellum very much smaller; elytra as in *rufipes* but less elongate and evidently wider than the prothorax, very gradually and arcuately narrowed posteriorly to the apices, which are briefly produced and each rather wide, deeply, obliquely sinuate, the external angles strongly spiculate, the sutural much produced and acute, similarly striate, the intervals not distinctly punctate, each elytron with a narrow reddish vitta from the humeral angles over the callus to two-fifths from the base at outer third, a small discal spot just behind the middle, another larger, more transverse and lateral at apical fourth and a small longitudinal dash near the suture between the last and the apices, the latter not pale; under surface completely

impunctate, except some very fine sparse asperate punctules laterally, in great part pale, each abdominal segment with a very large irregular pale fascia which is sometimes medially interrupted, the fifth wholly pale, except the tip and the lateral basal angles. Length 20.0 mm.; width 6.5 mm. One specimen from Cab. Levette labeled "N. Y.," but more probably from Colorado. **elongata** n. sp.

- 32—Elytra each with three large discal pale spots, the anterior elongate, oblong or oval and not attaining the base, the second transverse, at three-fifths, extending nearly from suture to side margin, the third feebly oblique, discal and near the apex. Body subparallel, rather depressed, brassy-green, the elytra somewhat more obscure, the under surface green with cupreous reflection; head strongly, densely punctured, without callous spots even medially; antennæ black, but feebly metallic; prothorax three-fourths wider than long, the apex but slightly narrower than the base, the sides subevenly, feebly arcuate; surface without pale maculation of any kind above or beneath, coarsely and not very closely punctate, without smooth or impressed line, with a small ante-scutellar puncture; scutellum small, subtransverse, oval; elytra twice as long as wide, distinctly wider than the prothorax, parallel, arcuately narrowed behind, the apices sinuate and strongly, acutely bidentate; surface finely striate, the striæ as in *fasciata*, punctate, the punctures more visible viewed obliquely from the side than from the suture, the intervals nearly flat, equal, finely and remotely punctate; abdomen finely punctate, densely so laterally. Length 11.3 mm.; width 4.0 mm. Michigan **sexplagiata** Lec.

Elytra each with a conspicuous irregular pale fascia at three-fifths and a small oblique subapical spot, also sometimes a small discal pale spot at two-fifths from the base. 33

- 33—Sides of the prothorax incurvate at base and feebly swollen basally, but thence moderately converging and nearly straight to the apex. Body oblong-elongate, moderately convex, polished, cupreous, generally more greenish anteriorly, sometimes obscure throughout, the under surface bright cupreous to greenish or even violaceous in the dark forms; head strongly but very unevenly punctate, the eyes prominent; prothorax nearly twice as wide as long, the apex about four-fifths as wide as the base, broadly, subevenly sinuate, the base feebly bisinuate; surface coarsely, sparsely punctate, more closely laterally, feebly to not at all impressed along the middle, generally with a small sublateral rounded impression, the ante-scutellar fovea conspicuous; scutellum moderate, variable; elytra slightly more than twice as long as wide, just visibly wider than the prothorax, parallel, arcuately narrowed behind, the apices sinuate and strongly bispiculose; striæ rather strong, evenly and closely punctate, the punctures on the inner slope of the grooves, the intervals nearly flat though slightly inclined sutureward, extremely minutely, remotely punctulate; abdomen with the basal segment very faintly and indefinitely impressed along the middle, finely, not very closely punctate, more strongly, densely so laterally; basal joint of the hind tarsi unusually short, very much shorter than the

next two combined. Length 14.8-15.7 mm.; width 5.2-6.0 mm. Dakota, Wisconsin (Bayfield) and Indiana..... **fulgens** n. sp.

Sides of the prothorax evenly converging and distinctly arcuate from a short and very feeble though abrupt basal swelling to the apex, not evidently incurvate at base; subapical spot of the elytra very much more oblique. Body more elongate in form, brilliant and pure green in color, becoming subæneous beneath, maculate nearly as in *fulgens* but with the post-median fascia generally fuller and less irregular; head strongly and closely but somewhat irregularly punctate, the eyes moderately prominent; antennæ piceous-black, with feeble metallic reflection; prothorax almost twice as wide as long to evidently less, more or less feebly impressed along the median line, strongly and subequally but not very closely punctate throughout, with a small and feeble sublateral impression at basal third; scutellum rather small, subquadrate but variable as usual; elytra slightly more than twice as long as wide, evidently wider than the prothorax, parallel, the sides gradually rounding and converging in apical third, the apices, striæ and punctuation nearly as in *fulgens*; a small ante-median spot sometimes present but frequently wholly obsolete; all the spots, as in *fulgens*, surrounded by a black clouded border; abdomen punctulate nearly as in *fulgens*, the lateral punctures similarly larger and rather dense, only slightly more asperulate. Length 14.2-17.5 mm.; width 5.2-6.4 mm. Pennsylvania, New York and Ontario (Sudbury). [= *sexmaculata* Hbst., and *thermiferi* Chev..... **fasciata** Fabr.

A—Similar but more elongate, bright cupreo-æneous above and below, with feeble greenish reflection at the sides of the elytra, the latter similarly maculate and sculptured; head nearly similarly sculptured; prothorax less transverse, three-fourths wider than long, equally strongly but much more densely punctured throughout, feebly impressed medially toward base; elytra nearly two and one-half times as long as wide the sides more gradually rounding and converging behind and less oblique than in *fasciata*, the apices similar; abdomen similarly punctulate, the first segment more strongly impressed along the middle though indefinitely as in *fasciata*. Length 16.2 mm.; width 5.7 mm. Michigan **fortunata** n. subsp.

34—Elytra each with three large and distinct pale spots, one near basal third and sometimes extending to the base, another behind the middle and the third near the apex, the apices always sinuate and acutely bidentate, the pronotum more or less evidently impressed along the middle..... 35

Elytra immaculate or having sporadically a small spot near three-fifths and another still smaller near the apex..... 39

35—Anterior pale spot extending obliquely to the base and enveloping the humeral callus. Body elongate, brassy-green; head purplish, punctate, the front carinate; prothorax one-half wider than long, punctured, the sides subparallel, the base bisinuate; elytra purplish, the basal pale spot including a dark spot on the humeral callus, the spot at about one-

third from the apex transverse, not attaining the suture but extending to the margin, the subapical extending nearly to the suture and dilated along the margin, the spots reddish-yellow in color; striæ deep, punctate, the intervals sparsely punctate; antennæ testaceous, the first joint ænescent. Length 15.0 mm. Washington State (Steilacoom).
gibbsi Lec.

Anterior pale spot wholly discal like the others, never extending to the base; antennæ always black, with more or less æneous or greenish metallic lustre throughout.....36

36—Subapical spot of the elytra very oblique, the anterior spot nearer the side margin than the suture. Body brilliant and pure green, becoming faintly æneous medially beneath, slender; head very densely, sub-uniformly punctate; eyes prominent; prothorax four-fifths wider than long, the sides parallel and straight to beyond the middle, there rounding and distinctly convergent to the apex, the latter broadly sinuate, feebly arcuate medially; surface bluish centrally, coarsely, closely punctate, confluent so laterally; elytra nearly two and one-half times as long as wide, a fifth wider than the prothorax, parallel, the sides rounding and becoming oblique in apical third, the striæ deep, coarse, finely, confusedly punctate, the intervals not quite twice as wide as the striæ, remotely punctulate, not very convex; anterior spot moderate, rounded, almost twice as far from the suture as from the side, the second transverse, irregular, not attaining either suture or sides, the third not attaining the sides or suture; abdomen with the basal segment not at all impressed, finely punctate, densely so laterally; legs slender. Length 13.5 mm.; width 4.5 mm. California. **bistrinotata** n. sp.

Subapical pale spot only moderately oblique, the anterior on the median line.....37

37—Prothorax apparently parallel, the sides evenly and distinctly arcuate. Body very slender, slightly convex, colored as in *bistrinotata*; head small, densely punctate, with a small central æneous callus not suggested in the preceding; eyes prominent; prothorax short, very nearly twice as wide as long, strongly but sparsely punctured, more closely in the medial depressed line and more coarsely as well as densely laterally, with a deep rounded sublateral impression behind basal third, the apex but little narrower than the base; scutellum rounded, convex, smooth; elytra fully two and one-half times as long as wide, between five and six times as long as the prothorax and nearly a third wider, nearly as in the preceding but more broadly sinuate at the tips; intervals narrower and more convex, the spots all discal, not attaining suture or sides; abdomen finely, more sparsely punctate, the basal segment very faintly impressed along the middle, the fifth segment truncate and feebly bidentulate at apex in the male. Length 12.5 mm.; width 4.1 mm. California **angusta** n. sp.

Prothorax similarly distinctly narrower than the elytra but with the sides converging from base to apex, broadly arcuate basally, becoming straighter anteriorly or evenly arcuate throughout.....38

38—Sides of the prothorax evenly arcuate from base to apex. Body very elongate, moderately convex, shining, viridescent, with very strong cupreous lustre, the under surface brilliant cupreous-red medially and throughout the abdomen, viridescent laterally and with unusually long ashy pubescence; head very densely and confluent but subuniformly punctate, the eyes large and prominent; prothorax three-fifths wider than long, the apex decidedly narrower than the base, obsolete bisinuate truncate; surface strongly, closely punctate, densely and more coarsely so laterally, with the impression large, shallow and diffuse, the median line broadly but strongly impressed throughout; elytra between four and five times as long as the prothorax and a fourth wider, parallel, the sides rounding and converging behind in apical third, the apices sinuate and acutely bidentate; sculpture as in *bistri-notata* but with the punctures of the inner of the two confused series of the striæ more distinct; anterior pale luteous spot large, longer than wide and anteriorly pointed, the second large, almost rounded, the third broad, attaining neither suture nor sides; abdomen with the basal segment feebly flattened medially, the punctures fine but strong, dense laterally, the fifth segment broadly, angularly emarginate at tip in the male. Length 16.0 mm.; width 5.2 mm. Oregon (Newport),—H. F. Wickham..... **callida** n. sp.

Sides of the prothorax gradually more arcuate basally. Body less elongate, parallel, subdepressed, shining, green, sometimes with very evident cupreous lustre, cupreous beneath on the abdomen, otherwise green laterally; head densely, confluent punctate, the eyes prominent, pale in examples at hand; prothorax shorter, three-fourths wider than long, the apex much narrower than the base; surface broadly impressed medially, strongly, rather closely punctate, subconfluent so laterally, without evident impression; base with a small truncate and abruptly formed lobe at the scutellum, which is not at all evident in *callida*, the ante-scutellar puncture distinct; scutellum small, rounded, variable; elytra as in *callida* though shorter, but little more than twice as long as wide, the sides more arcuate to the tips, which are sinuate and bispiculose as usual; sculpture and maculation nearly similar, as is also the punctuation of the under surface, the anterior spot much smaller, the post-median more transverse; apex of the fifth ventral transversely truncate in the male. Length 14.5–15.5 mm.; width 5.0–5.6 mm. California..... **fastidiosa** n. sp.

A—General characters relating to form, coloration, maculation and sculpture as in *fastidiosa*, the eyes still more prominent; prothorax notably shorter and more evidently narrower than the elytra, almost twice as wide as long and rather more sinuate at apex, but otherwise similar; elytra even more rounded on the converging sides in apical third, the sinus of the apices very much narrower than in any other form of this group; abdomen much less cupreous and only faintly so medially, broadly green laterally. Length 13.0 mm., width 4.6 mm. California..... **mediocris** n. subsp.

39—Elytral apices more broadly and frequently obliquely sinuato-truncate

- at tip, with the outer angle strongly dentiform, the sutural acutely prominent40
- Elytral apices much narrower, feebly sinuato-truncate, with the outer angle obtuse, sometimes almost rounded, the sutural acute though seldom very noticeably prominent.....42
- 40—Prothorax but little narrower than the elytra. Body elongate, slightly convex, shining, green, sometimes with decided cupreolate reflection, except the abdomen and median parts of the under surface anteriorly, which are brightly polished and cupreous; head rather small, densely, subconfluently punctate and somewhat rugulose, the eyes not very prominent; antennæ black with metallic lustre; prothorax two-thirds or more wider than long, the sides strongly converging anteriorly, more rounded basally; surface strongly and unevenly but rather sparsely punctate, confluent so in places laterally, broadly and very feebly impressed along the middle, the ante-scutellar puncture very small or obsolete; elytra rather evidently more than twice as long as wide, parallel, the sides gradually rounding in apical third to the apices, coarsely furrowed, the furrows confusedly crenate; intervals narrow, remotely punctulate, generally wholly immaculate but occasionally having each a small spot near apical third and a minute subapical dot; abdomen very minutely, sparsely punctate, less finely, closely so laterally. Length 16.0–19.2 mm.; width 5.2–6.3 mm. California and Oregon,—abundant.....*crenata* n. sp. (Mots., i. litt.?)
- A—Form and coloration throughout as in *crenata*, the head similar but relatively a little larger; prothorax differing very obviously, being smaller and less convex, shorter and more transverse, the sides less inflated basally, the central portions bluish and the sublateral rounded impressions notably more posterior in position; elytra nearly similar throughout but more distinctly wider than the prothorax; under surface similarly minutely and remotely punctulate, with broadly convex prosternum and transversely truncate fifth ventral. Length 16.5 mm.; width 5.9 mm. California (Yreka)....*seditiosa* n. subsp.
- Prothorax much narrower than the elytra.....41
- 41—Size large, notably depressed, viridi-cupreous, in great part bright cupreous beneath, the external marginal line of the elytra finely cupreous; head small, strongly, coalescently punctato-rugose, the eyes large but not prominent; antennæ black, metallic basally; prothorax two-thirds wider than long, the sides arcuate, converging anteriorly, the apex much narrower than the base, broadly sinuate; disk a little wider just behind the middle than at base, broadly and feebly impressed medially except toward apex, the subbasal foveola very feeble, the sublateral rounded impression behind the middle strong; punctures deep and rather coarse, moderately close, coarser, and crowded laterally; basal angles right; elytra a little more than twice as long as wide, almost a fourth wider than the prothorax, sculptured as in the preceding, not maculate; under surface almost similar, the first segment feebly flattened along the middle; legs slender, the basal joint of the hind tarsi not quite as long as the

next two combined. Length (♀) 19.5 mm.; width 6.8 mm. Washington State (Tacoma)..... **leviceps** n. sp.

Size much smaller, shining, almost pure vivid green above, the under surface, except laterally, and the abdomen æneo-cupreolate; head relatively somewhat larger, strongly, confluent punctate, the eyes moderate, not noticeably prominent; antennæ black, with the metallic lustre greatly diminishing apically; prothorax nearly four-fifths wider than long, almost parallel, the sides but feebly arcuate though more rounding and converging anteriorly, the apex less evidently narrower than the base; surface strongly punctate, densely laterally, with four small rounded impressions, one on each side of the broadly and feebly impressed median line just before the middle, the others in the usual sublateral position but feebler than in the preceding; elytra slightly more than twice as long as wide, the sides more rectilinearly oblique apically, five times as long as the prothorax and almost a third wider, sculptured as in the preceding, immaculate; under surface similar, the fifth ventral in the male rather narrowly truncate at tip, the truncature very faintly bisinuate. Length (♂) 15.3 mm.; width 5.3 mm. California,—Cab. Levette..... **depressa** n. sp.

42—Body beneath coarsely punctured; elytra cupreous at the sides. Form elongate-oval, subdepressed; head moderately densely punctate, brilliant green in color changing to cupreous; prothorax broader than long, narrower in front, the sides very feebly arcuate; surface moderately convex, with rather coarse punctures, which are more densely placed at the sides, brilliant cupreous in color; elytra at base wider than the prothorax, oblong-oval, the apex feebly attenuate, the tips feebly emarginate, with the sutural angle acute and slightly prolonged; surface striate, the intervals equal, moderately convex and sparsely punctate, the coloration diversified, brilliant blue along the suture, shading to green, with the margin cupreous; under surface very densely punctured at the sides of the metasternum and abdomen, brilliant cupreous in color with green reflection; prosternum and first ventral not sulcate. Length 15.0 mm. California (Owen's Valley) and Oregon..... **connexa** Horn

Body beneath finely punctured, more closely and strongly laterally as usual; elytra sometimes suffusedly cupreolate but never with distinct cupreous side margins..... 43

43—Species of the Pacific coast regions..... 44

Species of the far interior of the continent..... 45

44—Prothorax but slightly narrowed anteriorly, the sides almost parallel; upper surface pure brilliant green, the under surface cupreolate as usual. Body depressed, very shining; head very densely and confluent but almost evenly punctate, the eyes not prominent; prothorax fully three-fourths wider than long, the sides nearly straight and parallel, gradually more rounding and converging anteriorly; surface coarsely punctate, confluent so laterally, feebly impressed on the median line, the sublateral rounded impression behind the middle

very deep and conspicuous; elytra between two and three times as long as wide, almost a third wider than the prothorax, straight and parallel at the sides, the latter gradually oblique and becoming straight in apical two-fifths, the sutural angle not prolonged though acute; surface deeply crenato-sulcate as usual, with a small pale spot only slightly behind the middle and another at apical sixth; under surface finely, sparsely punctate, rather closely and strongly so laterally. Length 15.0 mm.; width 5.2 mm. British Columbia (Stickine Riv.),—H. F. Wickham.
viridimicans n. sp.

Prothorax much narrower at apex than at base, the sides converging and almost evenly arcuate throughout; upper surface golden-green. Body oblong, depressed; head and disk of the prothorax coerulescent, [the form of the latter assumed as above]; head rugose, the pronotum deeply punctate; elytra densely costate, the interstices [grooves] rugulose; apex truncate, unarmed. Length 17.0 mm.; width 6.0 mm. Alaska (Sitka)..... *langi* Mann.

A—Bright golden-green; head and prothorax thickly punctured, the latter with an impressed longitudinal line; elytra with deeply impressed punctured lines, having a purplish tinge on each side in front, full four times the length of the prothorax, cupreo-bivittate; abdomen with a short gilded band on the fore border of each segment, the tip cupreous. Length 18.0 mm. Vancouver Island. . . *ornata* Walker

B—Elongate, parallel, feebly convex, cuprascent above, the pronotum more brilliant cupreous, the sutural and basal regions of the elytra greener; under surface throughout highly burnished, deep and rich coppery-red, with faint greenish tinge near the sides anteriorly; head coarsely, confluent punctate, the eyes prominent, black; antennæ coppery-red basally; prothorax not more than three-fifths wider than long, the sides rather more rounded basally than usual and more incurvate at base; surface broadly and only very faintly impressed along the middle, with the sublateral impressions wholly obsolete, the strong punctures rather sparse, coarser, very deep and dense laterally; elytra about two and one-half times as long as wide, nearly five times as long as the prothorax but only slightly wider, the sides gradually rounding and converging in apical third to the narrowly sinuato-truncate apices, the sutural angle very acute but not much prolonged; surface with very coarse, confusedly cribrato-punctate grooves, which are about as wide as the remotely punctulate intervals, immaculate, suffusedly cupreolate; under surface finely, sparsely punctate, minutely so medially; femora unusually minutely, sparsely punctulate. Length 16.0 mm.; width 5.8 mm. Vancouver Island (Nanaimo),—H. F. Wickham..... *incolumis* n. subsp.

C—Similar to the last but more elongate and rather more depressed, green; the elytra suffusedly cupreolate, the under surface bright coppery-red; more broadly and evidently green toward the sides anteriorly; head very densely but less coarsely punctate, the eyes smaller and less prominent; prothorax nearly similar, except that the median line

is strongly impressed throughout; elytra similar though relatively broader, nearly a fourth wider than the prothorax and each with very small pale points near apical third and seventh or eighth; under surface with the fine punctures a little stronger. Length 17.0 mm.; width 6.0 mm. Oregon **oregona** n. subsp.

D—Still more depressed, polished, green with cupreous lustre, the elytra cupreous, with the broad sutural regions green; under surface as in *oregona*; head and eyes as in that form, the prothorax also similar though a little shorter, with dense sublateral areas of smaller punctures than in *oregona*; scutellum a little larger; elytra shorter though more than twice as long as wide, a little wider behind the middle than at base, a third wider than the prothorax, the sides more rapidly rounding and oblique posteriorly and becoming more rectilinear than in either of the preceding and in nearly apical two-fifths; surface less coarsely sulcate, the grooves more finely though confusedly punctate, the intervals wider, nearly flat, still more finely and remotely punctate than in the two preceding, each with a small pale spot only a little behind the middle and another near apical eighth; under surface somewhat less finely punctate, the femora more evidently. Length 16.0 mm; width 5.8 mm, British Columbia (Golden)..... **obliqua** n. subsp.

45—Sides of the prothorax evenly and unusually strongly rounded, becoming strongly convergent and gradually straighter anteriorly before about the middle. Body above very deep and uniform bluish-green throughout, the under surface green to bluish, with faint æneous reflection laterally on the abdomen only; head not coarsely, very densely and coalescently punctate, with the median line somewhat elevated but not smooth; eyes not prominent; antennæ black; prothorax much shorter than in any other allied species, fully twice as wide as long, the apex much narrower than the base, broadly and almost evenly sinuate, the base sinuate only near each side; surface scarcely visibly impressed medially, the basal fovea distinct, the sublateral rounded and densely sculptured impression rather small; surface strongly punctured, closely but not very confluent so laterally; scutellum small, elongate; elytra long, two and one-half times as long as wide, only very slightly wider than the prothorax, the sides almost rectilinearly oblique in more than apical third, the narrow apices very feebly sinuato-truncate; surface with the deep, densely and confusedly punctate sulci as wide as the intervals, sometimes with purplish-blue clouds and occasionally with small post-median pale spots as usual; under surface medially minutely and sparsely punctate. Length 15.5 mm.; width 5.2 mm. New Mexico.
patruelis n. sp.

Sides of the prothorax parallel and nearly straight, gradually rounding and moderately convergent anteriorly from near the middle.....46

46—Form elongate, subdepressed, uniform deep green though not very bright above, brighter and with some æneous reflection beneath; head small, very densely, confluent punctate, the eyes prominent,

black in all examples at hand; prothorax short, very nearly twice as wide as long, feebly impressed along the middle, the subbasal fovea well developed, the sublateral impressions feeble (♂), or deep and conspicuous (♀), also sometimes with two additional submedial feeble impressions in the former, which are obsolete in the latter, sex, where however a small oblique impression is visible near the base at lateral fourth; punctures strong, unevenly dense laterally; elytra shorter than in *patruelis* though much more than twice as long as wide, much more distinctly wider than the prothorax, with a tendency to post-medial inflation, the sides behind obliquely and subrectilinearly converging, the apices very feebly sinuate and with broadly rounded or obtuse external angles; surface nearly as in *patruelis*, generally immaculate but occasionally with small post-medial spots, especially in the female; under surface similar. Length 13.5-16.0 mm.; width 4.7-6.0 mm. Colorado (Boulder Co.).....**graminea** n. sp.

Form less elongate, similarly depressed, deep and uniform more brilliant green above, cupreous and shining beneath, becoming greenish at the sides anteriorly; legs bright green; head finely, very densely, subuniformly punctato-rugulose; eyes prominent, pale; prothorax as in *graminea* but rather more narrowed anteriorly, the apex deeply and evenly sinuate; surface narrowly, feebly impressed along the median line and with a strong rounded impression toward each side at basal third, strongly punctate, coarsely and very confluent so laterally; disk cœrulescent medially, as also in a broad area along the elytral suture disappearing toward tip; elytra scarcely more than twice as long as wide, about a fourth wider than the prothorax, somewhat abruptly, strongly, subrectilinearly narrowed in nearly apical two-fifths; surface with the sulci not quite so coarse but confusedly and closely punctate, the intervals much wider than the sulci, finely, remotely punctate, each elytron with a transverse sinuous pale spot and a small and very oblique subapical spot nearly as in *fasciata*, the spots surrounded by a black clouded border; punctures of the under surface stronger than in the preceding species but not conspicuous; basal segment of the abdomen very faintly impressed medially as usual in this section. Length 14.7 mm.; width 5.5 mm. Lake Superior (Isle Royale).....**saturata** n. sp.

“Elytra like *aurulenta*; prothorax flattened, side margin thickened, disk with a broad dorsal stripe, and oblique space each side smooth; prothorax and under surface thinly clothed with long soft white hair. California,—Coll. Mniszecz.”.....**villosa** Lec.

Some of the synonymy suggested by Crotch and since perpetuated in catalogues, is of so extraordinary a nature that it is difficult to account for it as a deliberately formulated scientific opinion; perhaps the most completely untenable of these suggestions is that which unites such diverse forms as *langi* and *sexplagiata* with *fasciata*. The species described under the name *connexa*, by G. H. Horn, is only

tentatively placed in the above table, for the remarks appended to the original description are so ambiguous that it is quite impossible to state anything definite concerning its relationships. The author at first places it in a group with *gibbsi* and *confluenta*, which are altogether dissimilar species, and he finally states that it has elytra somewhat as in *adjecta*, which is certainly not to be inferred from the language of the description; *adjecta* having no striæ in the usual acceptance of that term. The *villosa*, of LeConte, is appended in the complete language of the original description. The species is really not described, for while the few remarks concerning the prothorax would seem to signify alliance with *Buprestis* proper, as here limited, the elytra are said to resemble those of *aurulenta*. The name *aurulenta* Linn., has been until recently applied to two very different species, so that it is impossible to determine whether LeConte had in mind *ornata* Fab., or his own *lauta*. The locality "California" appears furthermore to be very doubtful.

The species near *maculipennis* are difficult to separate and my results are not given with entire confidence, the only opinion that can be held with certainty being that a number of distinct species are generally confused in our collections. The original descriptions of Kirby's species are alone utilized for the characters given in the above diagnoses. *Nuttalli*, by the maculation of the coxæ, may be allied more closely to *consularis* than to *alternans*, but the abdominal spots, ranged in a single series at each side, shows that is different from either. The inflation of the basal part of the prothorax in *nuttalli* is assumed, as no mention of such a character is made by Kirby. Of *rusticorum* I have two specimens; the outline is evenly fusiform and the sides of the trapezoidal prothorax are inwardly arcuate basally, which may account for the rather ambiguous language of the original diagnosis; the under surface is strongly and closely punctate and the elytral apices are obtusely subtruncate or apparently almost broadly rounded; the last ventral in these two females is truncate at apex, the sides of the truncature feebly subdenticulate, but this is a variable character. There can be little or no doubt that these specimens represent the true *rusticorum* and it differs considerably from those following it in the table, such as *fusca* and *adducta*, which have generally been assumed to represent the species. *Paganorum* seems to be very closely allied to *rusticorum* and may be merely a subspecies. I have assumed to

represent *consularis* a species not very common in the eastern States; the description of Laporte de Castelnau and Gory is evidently taken from an unusually large female, but the language "elytres très-épineuses à l'extrémité" is not strictly true of any example of the *consularis* group coming under my observation. The drawing also shows that the elytra are more prolonged at tip than in any that I have seen.

Elongata, of the above table, is evidently allied to the Mexican *variegata*, differing in the arrangement of the elytral spots, in its more obscure coloration, and, more especially, in its much more strongly punctured pronotum; it is also allied to *catoxantha* Lap.-Gory, differing essentially in having the elytral vitta proceed from the humeral angles and not from the "milieu de leur base." The names *dilatata* and *crenata* Mots., (*Ancylocheira*), quoted by LeConte (Proc. Ac. Phil., 1873, p. 331), appear to be unpublished; at any rate, I have carefully searched through four large volumes of Motschulsky's almost complete octavo papers without being able to find them, and they do not appear in the Munich Catalogue or in the special catalogue of the Buprestidæ by Kerremans. *Ornata*, of Walker, is wholly unrecognizable but may be a subspecies of the very insufficiently described *langi*, of Mannerheim. There can be no doubt whatever of the reality of many species allied both to *langi* and *gibbsi*, although the pale antennæ of the latter constitute a very exceptional character. *Langi* is probably a local species and the common California form, with broadly sinuato-truncate and acutely bidentate elytral apices, named *crenata* in the table, is undoubtedly different.

The species described by Harris under the names *Buprestis geranii* and *characteristica*, belong respectively to the genera *Acmaodera* and *Chrysobothris*. *Buprestis aurulenta*, of Linné, which has given rise to so much trouble and uncertainty, having been identified with *decora*, *lauta* and *impedita*, of the following subgenera, has seemingly at length found a definite resting place as a European species and may therefore be removed from our lists.

Subgenus *Cypriacis* nov.

The body here becomes, as a rule, rather more oblong, with the prothorax somewhat less trapezoidal than in *Buprestis* proper, and the

pronotum uniformly impressed or sulcate along the middle. The labrum is more chitinous and metallic in its basal parts, but, aside from this, there is very little in the structure of the sclerites or organs of the body to distinguish it as a separate group. The complete absence of true elytral striæ and the substitution therefor of a few longitudinal ribs, separated by wide and uniformly punctured or rugulose intervalles, is evidently a result of advanced evolution through Buprestid species of the *langi* type, the latter having evenly and closely sulcate elytra, with the sulci densely and confusedly punctato-rugose; and the impressed median line of the pronotum, incipiently evident in those forms, becomes here still more developed as an external feature. We have only to imagine the coarse sulci of *langi* to be greatly expanded, coincidentally with the suppression of the alternate ridges, to evolve the typical forms of this group, traceable indeed in intermediate stages through such species as *adjecta*, *brevis* and *intricata*. But the true striation of typical *Buprestis* has so completely disappeared that the group would seem to require separation as a subgenus, and, if the intermediate forms above mentioned, which are however much more closely related to typical *Cypriacis*, as exemplified in *lauta*, than to any species of true *Buprestis*, were to become extinct, the differences would certainly be of full generic import. The species are generally of vivid green or bluish-green metallic coloration, with abruptly cupreous elytral side margins as a rule, though occasionally dull coppery-brown throughout. Those known thus far may be characterized as follows:—

- Elytral costæ convex, their summits polished and impunctate. Pacific regions to Lake Superior.....2
- Elytral costæ flat, punctured. Atlantic regions.....13
- 2—Intervalles between the costæ each with a feeble secondary ridge, that between the sutural ridge and the first normal costa strong and sub-similar to the latter.....3
- Intervalles uniformly concave, densely and uniformly sculptured throughout. 5
- 3—Elytral suture not at all cupreous. Body short, stout and convex, moderately shining, green, the head, lateral and apical parts of the pronotum and side margins of the elytra cupreous; remainder of the elytra, less noticeable sublaterally and basally, with dark purplish-blue reflection; under surface throughout of a bright metallic magenta; head strongly but rather sparsely punctate, more finely, densely so basally; eyes moderate, the antennæ slender, dark piceous; prothorax strongly

trapezoidal, with evenly and moderately arcuate sides, about twice as wide as long, the surface very moderately impressed along the median line, strongly, not densely punctate, coarsely and in part subconfluently so laterally; base gradually prominent medially; elytra three-fourths longer than wide, scarcely wider than the prothorax, the sutural and next two ridges strong, separated by narrow sulci, the intermediate ridges elsewhere low and smooth, the depressed lines rugose; apices narrowly sinuate and bidenticulate; under surface minutely, sparsely punctate, the prosternum flat medially, entering the metasternum for a considerable distance, the first ventral convex; legs slender, the basal joint of the hind tarsi equal in length to the next two. Length 13.8 mm.; width 5.8 mm. Vancouver Island ((Nanaimo),—H. F. Wickham **brevis** n. sp.

Elytral suture cupreous or subæneous, as well as the side margins.....4

4—Body rather stout, above bright brassy-green, densely punctured, the under surface bright coppery tinged with green, moderately punctate, the prosternum broadly impressed between the coxæ and not hairy; head uniformly punctured; prothorax “almost three times as wide as long” (!), narrowed anteriorly, broadly rounded at the sides, cuprascent, broadly canaliculate; elytra at the sides broadly, at the suture narrowly, cupreous, each with four discal costæ and one, scutellar, united with the sutural, all smooth and shining, also with another costa, almost entire, between the elevated suture and the normal first discal costa; interstitial concave lines densely punctate, the apices subemarginate. Length 15.0 mm.; width 6.3 mm. Washington State (near Fort Vancouver).....**adjecta** Lec.

Body oblong-suboval, rather feebly convex, moderately shining, metallic green, the central parts of the pronotum and a broad median part of each elytron nearly from base to apex, deep indigo-blue, the elytral suture narrowly cuprascent, shading into green, the side margin more broadly brassy-green becoming cupreous posteriorly; under surface pale cupreous, with feebler greenish reflection; head very densely punctured throughout, with some small irregular smooth areas, the eyes not prominent; antennæ black, with more or less cupreous reflection; prothorax not quite twice as wide as long, the sides moderately converging and nearly straight to well before the middle, then strongly rounding and convergent to the apex; surface barely at all impressed along the median line, broadly, longitudinally impressed near each side, coarsely punctured, very densely almost throughout laterally; elytra about twice as long as wide, scarcely wider than the prothorax, the sides parallel, rounding and converging in rather less than apical third, the apices broadly rounded, not at all sinuate, the sutural angle right, not prominent; juxta-sutural supplemental ridge much narrower than the first normal costa though almost equally elevated; intermediate ridges low, narrowly smooth, the sublateral ridge very strongly elevated and conspicuous, the concave intervals strongly, transversely rugose; under surface finely, not densely but rather strongly punctate, the prosternum simply flattened medially, punctate anteriorly, more acuminate

posteriorly than in *brevis* but scarcely at all entering the metasternum; first ventral strongly convex medially; legs short, slender, the first joint of the hind tarsi rather longer than the next two. Length 18.5 mm.; width 7.2 mm. New Mexico..... **intricata** n. sp.

5—Third of the true elytral costæ very short6

Third costa long, extending to between apical third and sixth.....7

6—Form strongly depressed, the pronotum feebly impressed along the middle. Body oblong, gradually attenuate posteriorly, above obscure and dark in color, the head and sides of the upper surface more or less cupreous, the bottoms of the elytral rugosities bluish-metallic; beneath not very shining, densely sculptured and cupreous; head finely, very densely punctured, with long and conspicuous pubescence, the eyes rather prominent; antennæ nigro-metallescent; prothorax four-fifths wider than long, the sides rather strongly convergent and nearly straight, becoming arcuate and more strongly convergent only near the apex; base broadly and feebly arcuate, faintly sinuate laterally; surface convex, with moderate metallic punctures which are coalescent in small groups, dense laterally and also dense but smaller in the faint median depression; scutellum oblong, concave, cupreous; elytra nearly twice as long as wide, slightly wider than the prothorax, the parallel sides becoming gradually broadly rounded behind three-fifths, and thence feebly convergent and nearly straight to the rather narrow apices, which are rounded externally and not at all sinuate, the sutural angles right, not prolonged; surface notably depressed, with the usual convex costæ strong, the third abbreviated a little behind the middle, the sub-lateral very much elevated and conspicuous, the intermediate surfaces coarsely, confusedly reticulato-rugose; under surface rather finely but densely punctate and conspicuously pubescent throughout, the prosternum broadly concave and densely sculptured and hairy, the first ventral convex medially. Length (♂) 13.4 mm.; width 5.3 mm. Lake Superior (Whitefish Point)..... **lateralis** n. sp.

Form convex, the pronotum deeply canaliculate. Body rather broad, above obscure brassy-green; prothorax coarsely and densely punctate, narrowed anteriorly, the sides at the middle almost angulate, posteriorly sinuate; elytra densely and rugosely punctate, the suture, a scutellar costule, the margins and four discal costæ on each strongly elevated and smooth, the third discal costa greatly abbreviated; apices somewhat prolonged, truncate; under surface brassy-green. Length 15.5 mm. Lake Superior **sulcicollis** Lec.

7—Under surface of the body duller cupreous, obscure or blackish toward the median line. Body large, oblong, moderately convex, the head and pronotum bright cupreous, the latter suffused with greenish on the central parts; elytra deep vivid green, the sutural ridges and the lateral margins, including the fourth costa, bright cupreous; head rather pubescent, coarsely, deeply punctate, the punctures longitudinally confluent and compressed, a small central region depressed and finely, densely punctured and more greenish; eyes not prominent; antennæ

black; prothorax four-fifths wider than long, the sides feebly converging and straight to about the middle, there gradually rounding and more convergent to the apex, the latter but feebly sinuate; surface very coarsely punctured, sparsely so medially and sublaterally, more densely and confluent broadly near lateral fourth and near the sides, the median line distinctly impressed and finely, densely punctate; scutellum small, oblong; elytra not evidently wider than the prothorax, less than twice as long as wide, parallel, obliquely subrectilinear at the sides in fully apical third, the apices broadly rounded, the sutural angles almost obtuse; sculpture as in *laut*a though somewhat coarser; under surface sparsely pubescent, finely, not closely punctate, the prosternum broadly concave, strongly, sparsely punctate, not more pubescent, the concavity anterior becoming obsolescent posteriorly; apices of the ventral segments cupreous-red throughout the width. Length 20.8 mm.; width 8.0 mm. Mexico (Chihuahua),—C. H. T. Townsend. **fabulosa* n. sp.

Under surface bright cupreous throughout.....8

Under surface pale green, sometimes with faintly anescent reflection toward the median line, or bright bronze throughout.....10

8—Sides of the elytra posteriorly evenly rounding and converging to the apices. Body elongate-suboval, the elytra frequently feebly inflated subposteriorly, moderately convex, bright pale green to golden-green, sometimes darker greenish-blue, the anterior parts with more or less cupreous lustre, the elytral suture and side-margins bright-cupreous; head densely, confluent punctate, with a more depressed and more finely and densely punctured central spot which is longitudinally divided by a raised median line, subglabrous (♀), or very much more finely and densely punctate throughout and conspicuously pubescent (♂); eyes larger and more prominent in the latter; prothorax nearly twice as wide as long, the sides nearly parallel as a rule to about the middle, there rounding and more converging to the apex, sometimes converging throughout; surface well impressed along the middle, moderately and not closely or confluent punctate medially, irregularly, densely so laterally; elytra three-fourths longer than wide, evidently wider than the prothorax, the apices broadly rounded, the sutural angle frequently minutely dentate; surface with the four discal ribs well developed, the intervalles evenly and densely cribrate; under surface rather finely but strongly, not closely punctate, sparsely and feebly pubescent (♀), or conspicuously so (♂), the abdomen more closely punctured in the latter; prosternum more or less narrowly and distinctly impressed and punctured along the median line. Length 14.0–18.0 mm.; width 5.6–7.3 mm. Oregon to British Columbia and Vancouver Island. [= *Ancylocheira laut*a Lec.]..... *laut*a Lec.

A—Similar to *laut*a in coloration and sculpture but smaller and narrower in form, the prothorax but little narrower than the elytra, the sides almost evenly converging and arcuate from base to apex; elytra and under surface as in *laut*a, except that the apices in the former are narrowly truncate; head in the male similarly densely punctured

and hairy. Length 14.0-15.2 mm.; width 5.6-6.0 mm. Oregon.
[Fort Vancouver,—LeConte]..... **radians** Lec.

Sides of the elytra oblique posteriorly, becoming straight or feebly sinuate
before the tips.....9

9—Body rather stout, moderately convex, colored throughout as in *lauta*;
head (♀) as in that species, except that the central more densely sculptured
divided spot is not so clearly marked; prothorax four-fifths wider
than long, the sides scarcely converging and nearly straight to well
beyond the middle, there rounding and rapidly converging to the apex,
sensibly incurvate at base; apex subtruncate, broadly bisinuate, the
base also evenly bisinuate; surface with scarcely a vestige of impression
along the middle but with a small impression before the scutellum, the
punctures coarser than in *lauta* and coalescent in short sinuous lines
medially, coarser and densely coalescent laterally; scutellum broader,
quadrate; elytra shorter, rapidly oblique at the sides in apical two-fifths,
the oblique sides straight, the apices broadly rounded, becoming transverse
suturally, the sutural angle right and rather blunt; surface as in
lauta, the costæ well elevated but with the intervalles more unevenly
though similarly densely cribrate; under surface finely, remotely punctate
medially, rather strongly and closely so laterally, the prosternum
flat and smooth, with an obsolete subimpressed punctate median line.
Length 15.3 mm.; width 6.0 mm. Colorado (Boulder Co.). **æmula** n. sp.

Body much narrower, smaller than *lauta* but with similar coloration and
sculpture, except that the green on the elytra is replaced by deep greenish-blue;
head (♂) similarly finely, very densely punctate and pubescent,
the eyes larger and more prominent than in the female; prothorax
as in *lauta* but with the sides becoming less parallel behind the middle
though straight, not at all incurvate at base as they are in *æmula*; punctures
for the most part isolated or simply crowded as in *lauta*; elytra
but little wider than the prothorax, as in *lauta* but about twice as long
as wide, the sides becoming oblique in apical third and feebly sub-
sinuate just before the apices, which are broadly subtruncate, the external
angles right but rounded, the truncature anteriorly oblique suturally,
feebly undulated and with the sutural angle rather strongly spiculate;
sculpture as in *lauta*, except that the intervalles are still more
densely cribrate, almost opaque; under surface as in *lauta* but more
strongly and closely punctured than in the male of that species. Length
(♂) 14.2 mm.; width 5.2 mm. Washington State (Tacoma).

tacomæ n. sp.

Body rather stouter, coloration nearly as in *lauta* throughout, excepting
a broad bluish-green streak on each elytron; head nearly as in *æmula*;
prothorax three-fourths wider than long, the sides converging and
straight from the base nearly to apical third, there rounding and more
convergent to the apex; surface narrowly impressed and finely, densely
punctate on the median line anteriorly; punctures isolated, rather
sparse, moderate in size, coarse and unevenly confluent laterally; elytra
evidently wider than the prothorax, the converging sides posteriorly

becoming feebly sinuate before the tips, which are as in *lacomæ*, but with the outer angle more broadly rounded and more even and transverse suturally; costæ much more feeble than in any of the preceding forms, becoming very low at a little before the centre of each elytron, where the punctures extend almost across them, the intervalles densely, subevenly cribrate as in *lauta*; under surface punctured nearly as in *lauta* but more coarsely and densely so toward the sides, the prosternum rather narrowly and deeply impressed along the median line. Length (♀) 16.5 mm.; width 6.2 mm. Idaho (Cœur d'Alene) . . . **nupta** n. sp.

10—Pronotum with coarse punctures coalescent in short isolated irregular series on the median parts, densely but irregularly confluent laterally; general coloration of the upper surface as in *lauta* 11

Pronotum with much smaller but deep perforate punctures, not evidently confluent in short series medially, very dense laterally; coloration of the upper surface dull cupreous, the elytra medially broadly cupreo-viridescent 12

11—Body oblong, moderately convex, rather stout, the anterior parts more or less cupreous; elytra with bright cupreous inner and outer margins, the remainder bluish-green, the ribs frequently deep indigo; head with longitudinal rugulation caused by the compressed coalescent punctures, with a central green divided spot of dense punctures; eyes not at all prominent (♀), pale in all examples at hand; prothorax two-thirds wider than long, the sides broadly arcuate, becoming parallel basally, more convergent anteriorly, sometimes slightly sinuate just behind the apex, the latter truncate, broadly and evenly bisinuate; surface broadly and distinctly impressed along the middle; elytra evidently inflated behind the middle and nearly one-half wider than the prothorax to evidently less, scarcely three-fourths longer than wide, the oblique sides posteriorly becoming almost straight, the apices broadly rounded, transverse toward the suture, where the angle is sometimes distinctly spiculose; surface sculptured nearly as in *lauta*; under surface more strongly punctured, usually coarsely and very densely toward the sides; prosternum deeply impressed and densely punctate along the median line; females abundant; males rare as usual in this group. Length (♀) 16.5–17.5 mm.; width 6.5–7.0 mm. California . . . **venusta** n. sp.

Body larger and much more elongate, rather more convex, deep green, the anterior parts with but little cupreous lustre, the inner and outer margins of the elytra cupreous; head as in the preceding but with the median line more strongly elevated centrally; eyes not at all prominent, rather small; antennæ black, metallic basally; prothorax two-thirds wider than long, the sides parallel and subsinuate in nearly basal half, thence moderately convergent and almost straight to the apex, which is truncate, with the sinuations obsolescent; surface broadly, moderately impressed and scarcely more finely though more thickly punctured along the middle, rather pubescent at the sides; elytra almost twice as long as wide, evidently wider than the prothorax, the converging sides posteriorly not becoming quite straight, the apices very broadly rounded,

becoming somewhat oblique and straight toward the minutely denticulate sutural angles; surface with the costæ rather more acutely elevated than usual, the concave intervalles much more coarsely, confusedly and densely cribrate than in *lauta*; under surface plentifully pubescent, the prosternum narrowly and deeply sulcate, the abdomen not closely but rather strongly punctate, more strongly but not densely so laterally, the general color pale green, ænescent along the median line. Length 19.5 mm.; width 7.3 mm. New Mexico..... **prospera** n. sp.

- 12—Form elongate, subparallel, rather convex; under surface bright bronze, broadly greenish laterally except on the abdomen; head closely, perforately punctate, the punctures compressed and partially confluent longitudinally, the central densely punctate spot ill-defined, divided by an elevated line; eyes moderate, pale, only slightly prominent; prothorax only three-fifths wider than long, the sides converging and broadly, subevenly arcuate from base to apex; surface scarcely at all impressed along the middle but noticeably so at the base, the punctures much coarser laterally than medially, though not very confluent; scutellum subquadrate, rather well developed; elytra four-fifths longer than wide, a third wider than the prothorax, not at all inflated behind the middle but rather widest across the humeral swellings, the sides very gradually rounding in apical two-fifths, becoming not quite straight at the apices, which are clearly truncate though with the outer angle obtuse, the sutural angles denticulate; costæ rather low and broadly convex, the intervalles with the dense and crowded punctures regular but unusually deep; prosternum impressed and strongly punctate medially; abdomen finely, remotely punctate, becoming coarsely, shallowly and very densely so laterally. Length (♀) 18.0 mm.; width 6.5 mm. Oregon..... **affinis** n. sp.

Form nearly similar, the coloration similar, except that the under surface is less bronzed and the median parts of the elytra more bluish-green; head more finely and densely punctate, the punctures compressed, the median line fine, elevated; eyes nearly similar; prothorax shorter, two-thirds wider than long, similar in form, the apex bisinuously truncate; surface distinctly impressed anteriorly and more finely, densely punctate along the middle but scarcely impressed posteriorly, the punctures generally close-set, extremely dense laterally, with a less punctate longitudinal area basally near lateral fifth or sixth; scutellum much smaller, oblong; elytra a little shorter, the sides more rapidly and arcuately converging behind, becoming subsinuate before the angles, which are rounded, the apices thence transverse to the denticulate sutural angles; surface sculpture nearly as in the preceding but with more elevated costæ, the cribration rather less coarse; under surface more strongly, less sparsely punctate, the punctures coarse and densely crowded laterally; prosternum finely, deeply grooved along the middle, elsewhere medially impunctate as usual. Length (♀) 16.5 mm.; width 6.0 mm. California (Yreka)..... **adulans** n. sp.

- 13—Body rather stout and shorter, of less sombre coloration, the median parts of the elytra always more or less greenish or bluish. Obscure

cupreous, the anterior parts with greenish patches, the elytra with the broad sutural and marginal cupreous stripes suffusedly and gradually disappearing internally, sometimes obliterating the medial blue or green area by the resulting greenish-æneous tint; under surface cupreous; head with densely compressed and longitudinally confluent punctures, rather coarse (♀) or fine (♂), with a divided and more densely sculptured central spot, the surface feebly pubescent (♀), or densely and conspicuously so (♂); prothorax two-thirds to four-fifths wider than long, trapezoidal, the sides but slightly arcuate; surface only feebly impressed along the median line, strongly, sparsely punctured medially and in a sublateral tumescent area toward base, elsewhere densely punctate; elytra but little wider than the prothorax, sometimes decidedly inflated behind the middle, two-thirds or more longer than wide, the sides oblique posteriorly, the apices broadly rounded, becoming transverse toward the feebly denticulate sutural angles; surface with the low flat costæ distinctly and rather closely but irregularly punctate, the intervalles very densely and evenly cribrate; under surface pubescent and rather closely punctured (♂), or subglabrous and more sparsely and finely punctate (♀), the prosternum impressed and punctured medially. Length 14.3-17.0 mm.; width 5.3-7.0 mm. New York, Ontario, Michigan and Lake Superior (Bayfield and Whitefish Point)..... **impedita** Say

Body much more elongate and more parallel as a rule, always dark coppery-brown, the median line of the elytra seldom with any decided greenish tinge..... 14

14—Elytra gradually narrowed from but slightly behind the middle to the apices, which are transversely truncate. Body elongate-suboval, moderately convex, rather shining, dark brown with feeble cupreous-red lustre, more pronounced on the elytral costæ, the under surface bright cupreous; head (♀) as in the preceding, the eyes only moderate in size and but slightly convex; prothorax two-thirds wider than long, strongly trapezoidal, the sides broadly arcuate, becoming subsinuate broadly toward base, the basal angles somewhat acute from above; surface only very obsoletely impressed though more densely punctate along the middle; punctures coarse and deep, disposed as in the preceding; elytra fully four-fifths longer than wide, behind the middle two-fifths wider than the prothorax, the external angles at apex obtuse but not rounded, the sutural scarcely denticulate; surface with low flat punctured costæ, the intervalles more coarsely and confusedly cribrate than in the preceding, the second and third decidedly greenish in tinge; under surface evidently though sparsely pubescent, finely, sparsely punctate, more strongly but not densely so toward the sides of the abdomen, the prosternum impressed and closely punctured along the middle. Length (♀) 17.2 mm.; width 6.4 mm. Ontario (Georgian Bay).

canadensis n. sp.

Elytra more abruptly narrowed behind in barely apical third, the sides scarcely becoming straight near the apices; intervalles of the elytra never greenish..... 15

15—Elytral apices rounded. Body oblong, rather more convex, sometimes feebly inflated behind the middle, slightly shining, dark coppery-brown, duller laterally than medially; head as usual in the preceding species, with dense compressed punctures and fine central carina; prothorax three-fourths or more wider than long, the sides straighter and more parallel in basal, more converging in apical, half, sculptured as in the preceding but more closely throughout, the apex similarly feebly bisinuously truncate; scutellum elongate, subquadrate, impressed, cupreous; elytra three-fourths or more longer than wide, from very evidently to at least two-fifths wider than the prothorax, the apex transverse at the suture, broadly rounded externally, the sutural angles right; surface with the low flat costæ punctured, closely and coarsely so externally, the intervalles very densely, not very coarsely cribrate; under surface bright cupreous, the sculpture nearly as in *canadensis*. Length 13.0-18.0 mm.; width 4.8-6.8 mm. Pennsylvania to Ontario. . . **obscura** n. sp.

Elytral apices narrower, truncate to sinuato-truncate and more or less evidently bidenticulate. Body more elongate and parallel, relatively narrower and somewhat less convex, dark coppery-brown to blackish; head a little larger than in *obscura*, with dense compressed punctures which are rather coarse and subglabrous (♀), or finer and moderately pubescent (♂), with a median densely punctate depressed area divided by the central carina and generally green in color; eyes only moderate in size but prominent, generally black; prothorax almost twice as wide as long, the sides as a rule strongly converging in apical, nearly parallel and straighter in basal, half, the surface scarcely at all or very feebly impressed along the middle, the sculpture as in *canadensis* but closer throughout, the lustre generally more cupreous laterally; scutellum broader, cupreous, concave; elytra four-fifths longer than wide, but slightly wider than the prothorax, seldom at all inflated behind the middle, the sculpture nearly as in *obscura* though rather coarser; under surface not cupreous but bronzed, the abdomen rather closely punctate throughout and somewhat more strongly so than in *obscura*. Length 13.5-18.8 mm.; width 4.7-6.7 mm. North Carolina, Alabama and Louisiana. **striata** Fabr.

Several of the above species are represented by series sufficiently full to show clearly the extent of specific variation. This is perhaps most evident in the form of the prothorax, which may be subprominently rounded at the sides to evenly trapezoidal with feebly and evenly arcuate sides, within specific limits, also in the degree of inflation of the elytra, which are often notably wider behind the middle than at the humeri. The form of the elytral apices, on the other hand, seems to be one of the more constant characters, and, on the whole, the most useful in characterizing certain species which resemble each other superficially. The species described by Say under the

name *impedita* was wrongfully united with *striata* by LeConte; it is an abundantly valid species.

Subgenus *Stereosa* nov.

This section of *Buprestis* is very limited in extent. The general habitus of the species, involving among other features the somewhat greater convexity of the body, is quite different from that prevailing in either of the preceding subgenera, and it is this that prompts me to give them a distinctive subgeneric name. The general anatomical characters are as in *Cypriacis*, but the elytra have no vestige of regular discal costæ and but feeble traces of impressed striæ, in the usual sense, but instead there are series of large perforate punctures, the general surface being closely, deeply and confusedly but evenly cribrate with smaller punctures. The prothorax is trapezoidal and seldom has any trace of the impressed median line so developed in *Cypriacis* and in some of the less typical forms of true *Buprestis*, but the ante-scutellar impression or deep puncture is generally evident. The basal joint of the hind tarsi is similarly variable in elongation. The four species known thus far may be described as follows:—

Elytra narrowly but abruptly sinuato-truncate and feebly bidenticulate at apex. Body narrowly elongate-oval, convex, moderately shining, greenish-subcupreous, the elytra generally bright green, with the suture and external margins cupreous, frequently with a broad and ill-defined median vitta on each of a dense indigo blue and again at times suffused with cupreous almost throughout; under surface vivid green to bright cupreous; head very densely compresso-punctate, the central dense spot not very constant; eyes rather small and not very prominent; antennæ of the usual form, black; prothorax two-thirds or more wider than long, the sides converging from base to apex and nearly straight; apex truncate, very obsoletely bisinuate, the base broadly but more evidently; surface strongly but not closely punctate, the punctures smaller and denser in patches sublaterally, a median impunctate line sometimes evident but never entire; elytra slightly wider than the prothorax, almost twice as long as wide, the sides rounding and converging in about apical third; surface subevenly convex, the small punctures not densely crowded, rather sparse suturally, the larger perforations of the series moderate but variable in size and well separated; under surface finely, closely punctured, sparsely along the middle, the punctures toward the sides of the abdomen not at all crowded; prosternum flattened, finely, densely punctate and sometimes feebly impressed; head and under surface but slightly more hairy in the male. Length

(♂) 11.3-14.6, (♀) 15.2-16.7 mm.; width (♂) 3.9-5.0, (♀) 5.2-6.0 mm. North Carolina to Arkansas and Louisiana. [= *salisburyensis* Weber]..... **decora** Fabr.

Elytra rounded at tip, the sutural angles acute and more or less prominent. 2

2—Coloration nearly as in the preceding, bright and metallic, with the elytral suture and side margins cupreous. Form shorter and relatively stouter than in *decora*, generally paler and more uniform brassy-green, the elytra sometimes broadly suffused with darker, though usually greenish-blue; under surface bright cupreous; head smaller; similarly sculptured though more coarsely in the female, where there are some irregular smooth spots; prothorax similar but more rounded at the sides and more longitudinally convex, sometimes with vestiges of an impressed and more punctate median line, the punctures still coarser, not dense and more evenly disposed; elytra only two-thirds or more longer than wide, slightly wider than the prothorax, almost similarly formed, the serial perforations coarser, the punctures similar though relatively smaller and more apt to be distributed in a single line on some of the intervals, owing to the coarser serial punctures; under surface as in *decora*, the relative hairiness of these parts and of the head of the male and female similar. Length 12.0-13.6 mm.; width 4.5-5.5 mm. New Jersey and New York **ultramarina** Say

Coloration nearly uniform and more sombre, the elytra without cupreous suture or margins..... 3

3—Form oblong-oval, moderately convex, dull or feebly shining, obscure cupreous-brown, the anterior parts brighter but with the more elevated portions black (♀), or with the elytra obscure green (♂); under surface bright cupreous throughout, with greenish reflections; head very densely compresso-punctate, more coarsely so and less hairy in the female, the median line carinate centrally; eyes moderate, not very prominent; prothorax trapezoidal with feebly arcuate sides, three-fifths wider than long, with a rather pronounced groove along the apical margin laterally; punctures strong, sparse medially, where there is a nearly entire impunctate line in the female but not in the single male at hand, dense and confluent near the sides; scutellum oblong, depressed on the disk, with a median elevation; elytra three-fourths or more longer than wide, evidently wider than the prothorax, the oblique sides in apical third almost straight (♂), to decidedly arcuate throughout (♀), the surface even, except a sublateral ridge which is obsolete basally and feeble (♂), or very pronounced (♀), the serial perforations rather coarse, more or less elongate, the cribration dense, becoming very crowded laterally; under surface finely punctate, sparsely so (♀), or more densely and more pubescent (♂). Length 16.0-18.0 mm.; width 5.8-7.0 mm. Alabama (Grand Bay)..... **cribripennis** n. sp.

Form more elongate and rather more convex, dark and uniform bronze-brown above, more cuprescent anteriorly, bright cupreous throughout beneath; head more densely and uniformly compresso-punctate, the eyes decidedly smaller and less convex, not at all prominent; prothorax
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similar in form but rather more closely punctate, the punctures similarly uneven in distribution; scutellum nearly similar, cupreous; elytra nearly twice as long as wide, rather coarsely but not quite so densely cribrate, more notably sparsely so toward the suture, the punctures of the series coarse, deep and perforate; sublateral ridge less prominent; under surface somewhat more strongly and less sparsely punctate, more strongly but not very closely so laterally; male and female apparently with but slight structural differences. Length 18.0-22.0 mm.; width 7.0-7.8 mm. North Carolina; also one specimen labeled "Cal." but no doubt erroneously. [= *bosci* Lap.-Gory]..... **apricans** Hbst.

The sublateral ridge of the elytra varies in prominence in this section very much as in *Cypriacis*, where it is very strong and imparts a very characteristic facies in such species as *lateralis* and *intricata* and feeble in *fabulosa* and *brevis*; here it is almost obsolete in *decora* but pronounced in *apricans* and especially in the female of *cribripennis*. This ridge is seldom very prominent in *Buprestis* proper, though generally traceable. All the species of this section are locally distributed in pine regions and therefore generally rare, though abundant enough within their proper environments. *Ultramarina* seldom seems to have a coloration wholly warranting its name, the bright surface generally being of a more golden-green color than in *decora*; it seems to be decidedly rare.

Dicerca Esch.

This genus, though so different in general habitus, is related closely to *Buprestis* in most of its general organization, excepting in antennal structure and the very much shorter basal joint of the hind tarsi; it differs otherwise principally in its rough and irregular surface sculpture, prolongation of the clytral apices, which however becomes obsolete or nearly so in some species and occurs sporadically in other parts of the family, as for instance in *Psiloptera* and in *Buprestis consularis*, and, finally, in the male and female characters at the apex of the abdomen, which, though of a markedly different kind, are similarly inconstant within specific limits and therefore unreliable as a specific criterion. The broadly and feebly sinuato-truncate and sublobate anterior margin of the prosternum is a rather more striking feature than in *Buprestis*, but the prosternal process, the mesosternum and the metasternum are virtually similar and the meso-metasternal suture is very fine, the two surfaces being similarly anchylosed and not

departing noticeably in structure from the corresponding parts in *Psiloptera* and *Gyascutus*, as we are led to suppose from the group divisions made by LeConte in his monograph of the American species of the family.

The male does not differ much from the female in superficial characters, but the sterna are apt to be more impressed and punctate and more hairy in the former, where the apex of the fifth ventral is transversely, rectangularly emarginate as a rule, with the median part of the notch briefly and broadly produced in a truncate lobe. In the female the apex is more acuminate and is narrowly and deeply emarginate, generally with a slender tooth projecting from the bottom of the sinus, sometimes as far posteriorly as the lateral lobes; this tooth may, however, be well developed to wholly obsolete within specific limits and the sinus itself may be broader or narrower. In the male the intermediate tibiæ generally have on the inner side an obtuse tooth, which occasionally becomes a slender erect process as in *horni*. The coloration of the body is brassy or bronzed to dull cupreous as a rule, but is sometimes deep black throughout and without metallic lustre of any kind.

The species are very numerous in subarctic North America and are assignable to a considerable number of distinct groups, for the most part recognized and clearly characterized by LeConte; these groups may be briefly indicated as follows:—

Prosternum flattened, concave or sulcate.....	2
Prosternum convex.....	10
2—Prothorax not constricted basally or arcuately inflated before the middle.....	3
Prothorax shorter and more transverse as a rule, sinuously narrowed basally behind the more or less marked anterior inflation, the pronotum generally more uneven in sculpture.....	7
3—Intermediate tibiæ not dentate in the male though sometimes obtusely swollen or subangulate within.....	4
Intermediate tibiæ of the male with a strong obtuse internal tooth.....	5
Intermediate tibiæ of the male with a slender erect serrulate process internally.....	6
4—Elytra obliquely and gradually narrowed posteriorly, the sides usually becoming feebly sinuate before the apices, which, however, are not prolonged; they are deeply sinuate and acutely bidenticulate; pronotum never obviously canaliculate.....	Group I

- Elytra with the tips similarly sinuate and bidenticulate but prolonged; pronotum deeply canaliculate.....Group II
- 5—Elytra as in Group II but with the greatly prolonged apices entire. Group III
- 6—Elytra more strongly, arcuately narrowed behind, the apices rather abruptly but only very briefly prolonged and broadly obtuse. Group IV
- 7—Prosternum and last ventral segment not bicostate; elytral apices moderately prolonged.....8
- Prosternum with two smooth and strongly elevated costæ, the fifth ventral bicostulate..... 9
- 8—Elytral apices entire.....Group V
- Elytral apices sinuate and acutely bidenticulate; front with a callous band between the eyes..... Group VI
- 9—Elytral apices markedly prolonged, rounded; metasternum strongly sulcate.....Group VII
- 10—Body in form and sculpture somewhat as in the *obscura* group; elytra obliquely attenuate, not prolonged, the tips obtuse; intermediate tibiæ not dentate.....Group VIII

Although these groups differ among themselves to a very noticeable extent in general appearance and sculpture, I am not prepared at present to assign any very great taxonomic weight to their differential characters. The convex prosternum of *mutica* Lec., constituting group VIII of the table, seems at first very important, but in comparing *Buprestis confluenta* and *læviventris*, corresponding differences are observable in even more marked degree. It will be noted that I have been compelled to make some changes in the grouping proposed by LeConte.

Group I—Type *obscura* Fabr.

The species of this group are numerous and require unusual care in discrimination. The hurried and superficial manner in which they have been hitherto surveyed may be sufficiently inferred from the statement made by Crotch (Pr. Acad. Phil., 1873, p. 85) regarding his inability to distinguish *lurida* from *obscura*, two species altogether different, not only in general appearance, form of the prothorax and relative prominence of the eyes, but by the very much more marked internal swelling of the middle tibiæ in the male of the former; they are in fact representative species of the two principal sections into which this group may be divided, as shown by the following table:—

Eyes prominent; intermediate tibiæ of the male not or only very feebly swollen internally.....2

- Eyes not at all prominent, the intermediate male tibiæ more or less distinctly swollen or angulate internally; prothorax sinuate at apex throughout. . . .9
- 2—Prothorax evenly narrowed from base to apex, the latter sinuate as usual.3
- Prothorax parallel, the sides rounding and converging anteriorly to the apex4

3—Surface feebly convex, very roughly sculptured; body broad, oblong-oval, rather shining, dull cupreous, with the elevations black; under surface blackish and obscure cupreous; head roughly sculptured, with uneven callosities, which tend to form a transverse band between the eyes, the latter only moderately prominent (♀), or strongly so (♂); prothorax one-half to three-fourths wider than long, the sides feebly arcuate, sometimes feebly subprominent before the middle; surface finely, sparsely punctate, with a more strongly impressed medial subapical area, coarsely and confluent punctate laterally, with sublateral line of broken callous spots and an impression near lateral fifth behind the middle; ante-scutellar cavity distinct, single; scutellum small; elytra scarcely wider than the base of the prothorax, three-fourths or more longer than wide, the oblique sides posteriorly becoming evidently sinuate before the tips, which are more broadly sinuate than in any other species of the group, strongly bispiculose; surface densely punctate, sparsely and finely near the suture, generally with evident rows of coarser punctures, the alternate intervals with elongated and conspicuous irregular raised polished black areas; under surface coarsely, rugosely punctate, the pectoral channel much broader, more evenly concave and densely sculptured and hairy in the male than in the female as usual. Length 13.5–18.3 mm.; width 4.7–6.6 mm. Virginia (Norfolk) and North Carolina (Southern Pines) to Florida.[= *Buprestis obscura* Fabr., *baltimorensis* Hbst., and *consimilis* and *pruinosa* Goryl].
obscura Fabr.

Surface evidently more convex and smoother, form more elongate, still darker in coloration, with more æneous than cupreous lustre; head coarsely, very densely but more evenly punctato-rugose, without very marked callous spots, the pubescence longer and much more conspicuous; eyes more widely separated; prothorax nearly similar in form but rather less transverse, the sides evenly and feebly arcuate throughout; surface much more even and more evenly punctate, rather closely so, with similar anterior punctured area and basal pit medially, the punctures relatively less coarse and more evenly dense and confluent laterally, not impressed sublaterally behind the middle; scutellum larger; elytra similar though rather more elongate, the sculpture of the same general nature but less coarse and more even, the callous spots smaller, less elevated and much less conspicuous; sides posteriorly becoming straight and not sinuate toward the tips, which are much more narrowly and normally sinuate and bidenticulate; under surface nearly similar. Length (♀) 18.8 mm.; width 6.3 mm. Texas.
indurata n. sp.

4—Apex of the prothorax subtruncate, broadly sinuate laterally, the median part arcuate, with a small median sinuation. Body very much smaller, oblong, feebly inflated behind the middle, rather convex, moderately shining, dull æneous above, more cuprascent beneath; head densely, moderately coarsely punctato-rugose, with a transverse callous spot centrally, the pubescence short, not conspicuous; antennæ cupreous, sparsely hairy; prothorax three-fifths wider than long, the parallel sides nearly straight to within an unusually short distance of the apex, there rather abruptly rounded and convergent to the apex; surface confluent and coarsely punctate laterally, less coarsely, rather sparsely medially, where the median line is feebly impressed before the middle and rather more punctured, the ante-scutellar pit bipunctate; near lateral fourth before the middle and at base there is a small irregular callous area and behind the middle a large vague suboblique impressed region; scutellum very small; elytra with the basal margin slightly wider than the prothorax, not quite twice as long as wide, the gradually rounding oblique sides in apical two-fifths becoming barely perceptibly sinuate near the emarginate tips, which are strongly bispiculate; surface densely and unevenly punctate, less densely so suturally, the impressed striæ distinct suturally but only finely punctate, the raised elongate spots, separating the usual subdepressed areas of denser and finer punctuation, moderately developed; under surface rugosely punctate, the median tooth of the apical sinus (♀) unusually broad and parabolic in form, the two notches very small. Length (♀) 14.0 mm.; width 5.0 mm. Wisconsin..... **truncata** n. sp.

Apex of the prothorax broadly, subevenly sinuate as usual.....5

5—Sides of the elytra posteriorly very gradually rounding and oblique, becoming straight or barely perceptibly and very broadly sinuate before the emarginate apices; body small in size.....6

Sides of the elytra more rapidly converging posteriorly, becoming very obviously sinuate before the apices; body larger and stouter.....8

6—Elytra unusually elongate, more than twice as long as wide, with the punctures everywhere distinct, close but not confluent laterally. Body slender, convex, shining, feebly cupreous above and beneath, the elevations blackish; head coarsely, densely punctato-rugose, with a transverse central callus, the pubescence evident; prothorax one-half wider than long, the sides straight and parallel to apical third, there rounding and convergent to the apex; surface somewhat tumid medially, feebly, obliquely impressed near the base at about lateral fourth, with coarse crowded punctures and some small and very irregular callous spots laterally, the median parts sparsely but strongly punctured, the ante-scutellar pit not evident; elytra at base very slightly wider than the prothorax; surface unevenly and feebly striate, not so roughly sculptured as usual, the elongated callous spots only slightly elevated, the areas of dense punctures well defined and conspicuous; under surface coarsely punctato-rugose, the pectus (♀) narrowly and deeply, the first ventral unusually distinctly but broadly, sulcate, the fifth ventral with a

- short blunt median tooth at apex. Length (♀) 15.7 mm.; width 4.9 mm. New Hampshire (Hampton)..... **gracilis** n. sp.
- Elytra less elongate, twice as long as wide or less, with the coarse punctures laterally very uneven and confluent as usual..... 7
- 7—Body oblong, moderately stout and convex, sometimes feebly inflated behind the middle, moderately shining, obscure æneous, somewhat cupreous beneath; head nearly as in *gracilis*, the prothorax similar but shorter and more transverse, with the parallel sides in basal two-thirds generally, straight but sometimes faintly sinuous; surface not evidently tumescent medially and with the ante-scutellar pit evident, sometimes bipunctate; elytra narrowing behind in about apical third, roughly sculptured, with the patches of dense punctures large and very obvious, the elongate callous spots strong; under surface (♀) nearly similar, with the impression of the first ventral rather distinct, the median tooth of the apical sinus longer and acute or finely aciculate; male with the sternal channels broader, concave, densely sculptured and more hairy. Length 13.8–16.0 mm.; width 4.8–5.7 mm. Kansas to Pennsylvania..... **porcatula** n. sp.
- Body narrower anteriorly, the elytra rather strongly inflated, convex, nearly similar in coloration, lustre and sculpture, except that the densely punctate patches of the elytra are less impressed, more confused and less definite; head nearly similar though much smaller; prothorax three-fifths wider than long, slightly inflated before the middle, with broadly rounded sides, the latter evidently sinuate in nearly basal half, the basal angles less than right; elytra behind the middle fully a fourth wider than the prothorax, twice as long as wide, the sides broadly arcuate, gradually converging behind in fully apical two-fifths, the apices narrower than in *porcatula* and more semicircularly sinuate; female with distinct sternal and abdominal axial impressions, the fifth ventral with a small shallow apical sinus, the median tooth and lateral lobes very short, the former obtuse. Length (♀) 14.0 mm.; width 4.7 mm. Florida (Marion Co.)..... **innocua** n. sp.
- 8—Form oblong-oval, convex, shining, obscure æneous, brighter cupreous-æneous beneath; head coarsely, densely punctato-rugose, with a small transverse central callous spot, the hairs very small and inconspicuous; eyes unusually large and prominent; antennæ but little longer than the head, cupreous; prothorax large, but little more than one-half wider than long, the sides broadly rounding and converging anteriorly, becoming parallel from before the middle and also evidently sinuate basally; surface rather closely, moderately punctate along the middle, especially in the anterior feebly impressed area, the punctures gradually coarser and close laterally, becoming coarse and crowded near the sides, with a sublateral line of irregular callus but not evidently impressed near the base, the ante-scutellar pit small though deep; elytra but little wider than the prothorax, fully twice as long as wide, faintly inflated subposteriorly, narrowing in apical third; surface not very rough, with coarse and very confluent irregular punctures laterally, without evident series of punctures, the punctured patches moderate, the callous spots

large though feeble, cariniform near the semicircularly emarginate apices; under surface (♀) deeply impressed throughout the sterna and first ventral, the sinus of the fifth deep, with the median tooth long, very slender and aciculate. Length (♀) 16.8 mm.; width 5.9 mm. Indiana..... **sagax** n. sp.

Form nearly similar, shining, obscure to bright cupreous above, not brighter beneath; head nearly similar but without so distinct a central callus, subglabrous, the eyes relatively not quite so large or prominent though more so than usual; prothorax similar but broadly rounding at the sides and more gradually narrowing anteriorly from only a little before the middle, the sides parallel and subsinuate behind the middle; surface sculptured as in *sagax* but with the medial feebly impressed and densely punctate subapical spot shorter and better defined, and with large diffuse oblique sublateral impressions of the disk behind the middle; scutellum similarly distinct, rounded; elytra very evidently more than twice as long as wide, not so inflated behind the middle, more strongly though similarly sculptured, the densely punctate areas deeper, the callous spots stronger, especially in the sublateral series behind the middle; there are also more or less evident, scarcely impressed series of coarser punctures; under surface (♀) nearly similar, except that the medial tooth of the apical sinus, though variable in length, is truncate at tip, sometimes broadly so. Length (♀) 17.5 mm.; width 6.0-6.3 mm. Florida.

floridæ n. sp.

9—Oblique sides of the elytra posteriorly becoming straight or virtually so toward the apices. Grayish-brassy in color; prothorax shorter than wide, narrowed anteriorly, the sides broadly rounded, subparallel behind the middle, the surface roughly punctate, confluent toward the sides, sparsely at the middle, with an obsolete and nearly smooth vitta near each side, the median line somewhat impressed, more densely punctate, the channel being more evident than in *obscura*; elytra rugosely punctate, the striæ toward the suture and apex more strongly punctured, the intervals variegated with irregular elevated black spaces, more irregular than in *obscura*, being rather portions left between confluent punctures than oblong areas, the apices gradually attenuate, not at all prolonged, bidentate. Length 15.0 mm. (♀). Pennsylvania.

soror Lec.

A—Cupreous, the elevations greenish-black; under surface obscure cupreous-red; head coarsely, very densely punctate, with callous spots in a general broad transverse line between the eyes and above the middle of the front; prothorax three-fifths wider than long, the sides straight and parallel, gradually rounding and converging to the apex from a little before the middle, the surface almost evenly but only moderately convex, coarsely, densely punctured laterally, with numerous smooth, very irregular raised spaces, more finely, sparsely so medially, with the densely punctate median line impressed anteriorly but not elsewhere; ante-scutellar pit diffused on the margin; elytra more than twice as long as wide, but little wider than the prothorax, gradually narrowing behind in fully apical two-fifths, the

convex surface more even than usual, with impressed punctured striae almost even and visible nearly to the sides, the densely punctured spots small and not impressed, the black spots feebly elevated, generally small but occasionally large and oblong, the punctuation not very rugose though dense, except near the suture; under surface (♀) channeled along the axial line as usual, the apical sinus with a long slender aciculate tooth. Length (♀) 16.0 mm.; width 5.8 mm. New York (Buffalo)..... **regularis** n. subsp.

Oblique sides of the elytra toward tip becoming more or less evidently sinuate, the tips thus appearing as though very slightly prolonged.... 10

10—Elytra not noticeably inflated subposteriorly, relatively more elongate. 11

Elytra more or less conspicuously inflated, being decidedly wider behind the middle than at base..... 12

11—Form elongate, rather convex, moderately shining, obscure æneous, feebly cuprescent beneath; head coarsely, densely punctate and rugulose, the central callus obvious; prothorax nearly two-thirds wider than long, the sides rounding and converging anteriorly, parallel and broadly, feebly sinuate from before the middle to the base; surface subevenly convex, coarsely, densely punctured laterally, with callous spots near the sides medially and others, very variable, in a sublateral line especially visible before the middle and at base; median parts rather finely, sparsely punctate, the anterior punctured area but very feebly impressed, the basal pit evident, sometimes bipunctate; scutellum longitudinally sulcate as a rule; elytra but little wider than the prothorax, distinctly more than twice as long as wide, subparallel, the sides gradually rounding and converging in apical two-fifths and gradually sinuate near the strongly bidenticulate apices, which seem to be slightly prolonged; surface coarsely, very rugosely and confluent punctate laterally, the punctured series broken but evident, the raised spaces very irregular and the punctate areolæ not well defined; under surface as usual, the median tooth in the apical sinus of the fifth ventral (♀) long and acutely aciculate. Length (♀) 17.5–18.2 mm.; width 5.7–6.1 mm. Indiana and Illinois (northern)... **levettei** n. sp.

Form narrower and still more convex, glittering and bright æneous, varied with small subcupreous patches, the raised parts greenish-black; under surface cupreous, dull laterally due to the coarse confluent sculpture, polished and viridiæneous medially; head very coarsely, confluent punctato-rugose, with small callous spots; antennæ a little longer than the head, bright cupreo-æneous; prothorax shorter, three-fourths wider than long, the sides broadly arcuate and gradually moderately converging anteriorly, becoming subparallel and feebly sinuate only behind the middle; surface very coarsely, densely punctate and with numerous very irregular ramifying callous spots laterally, sparsely and more finely punctate medially and nearly as in *levettei*; elytra more than twice as long as wide, barely at all wider than the prothorax, the sides very gradually rounding and converging from only slightly behind the middle, more feebly and broadly sinuate toward the strongly bispicu-

lose apices than in the preceding; surface less rugosely though coarsely and rather confluent punctate laterally, the punctured striae fine but evident suturally, the dark spots elongate and numerous but only feebly elevated, the punctured areolae very irregular but distinct, sometimes with more greenish-metallic lustre; under surface (♀) deeply sulcate along the prosternum, the metasternum flat, the medial tooth of the apical sinus long, slender and aciculate. Length (♀) 16.0 mm.; width 5.5 mm. Illinois (southern) **gaudens** n. sp.

- 12—Body elongate and rather narrow, convex, gradually inflated posteriorly, slightly shining, dark cupreous, obscure above, brighter when living; head rather small, densely, moderately coarsely punctured, generally with a V-shaped central callus; prothorax two-thirds wider than long, the sides broadly rounded and moderately converging before, becoming parallel and broadly sinuate behind, the middle; surface broadly, indefinitely impressed sublaterally behind the middle, densely but only moderately coarsely punctate and with irregular callous spots laterally, sparsely and finely punctate medially, the subapical spot scarcely impressed, the basal pit variable, generally small but sometimes double; elytra at base but little wider than the prothorax, gradually broader posteriorly, and, behind the middle, evidently wider than at base, the sides thence very gradually rounding and converging, becoming sinuate before the sharply bidenticulate apices; surface unusually rough, the cupreous areolae more deeply impressed, the raised spots numerous and prominent; under surface deeply impressed along the axial line nearly to the apex of the first ventral. Length 15.0–17.0 mm.; width 4.9–5.8 mm. New York to Florida. [= *indistincta* Mels.]. . **lurida** Fabr.

Body nearly as in *lurida* in general coloration and moderate lustre but more parallel and relatively stouter, less dilated posteriorly; head less densely punctate, the callous spots similarly very irregular in a transverse interocular region; prothorax larger and much less transverse, barely one-half wider than long, similar otherwise, except that the anterior densely punctate medial spot is more impressed and the areas of dense punctuation at each side of the sublateral line of callus anteriorly are more impressed, causing the vittae to be more prominent; elytra more rapidly attenuate posteriorly, scarcely more than twice as long as wide, but slightly inflated behind the middle, the surface very much smoother than in *lurida* and with the punctured series very distinct and entire nearly to lateral third; sides only slightly sinuate before the apices; under surface (♀) nearly similar, except that the sinus of the fifth ventral is shallower, with the median tooth shorter, triangular. Length (♀) 17.0 mm; width 5.9 mm. Texas. **seriata** n. sp.

Body shorter than in either of the preceding, shining, æneous, the head and sides of the pronotum cuprascent, the entire under surface more brilliant cupreous; head coarsely, densely punctate, with a broadly V-shaped central callus, including a depressed area; there is also a transverse band of irregular callous spots between the antennae; prothorax nearly as in *lurida* but with the oblique impressions behind the middle still stronger; elytra scarcely twice as long as wide, moderately inflated

behind the middle, where they are a third wider than the prothorax, the sides rather rapidly rounding and converging posteriorly, becoming only broadly and very moderately sinuate near the apices; surface very densely but not very coarsely punctato-rugose laterally, very uneven, the punctured areolæ much impressed, the striæ indistinct and much broken, the callous areas moderately elevated, finely cariniform near the apices; under surface (♀) as usual, the median tooth of the apical sinus long and slender but obtuse at apex. Length (♀) 15.0 mm.; width 5.5 mm. Iowa.....*erosa* n. sp.

Obscura is represented before me by a large series, holding very homogeneously to the characters above stated; cabinet specimens are generally dark and obscure in coloration, but the appearance of fresh examples is markedly different, owing to a pale grayish-metallic bloom which is destroyed unless the utmost care be taken in handling them; it is probably one of these specimens that served as the type of *pruinosa*. The integuments of the body are so thick and hard that a pin is to be inserted only by using great force; *lurida* and allied species are not so heavily armored. *Soror* is compared with *obscura* by LeConte, and is declared to be identical by Crotch, though the form of the prothorax seems to approximate more closely to that of the *lurida* type; nothing is stated by the describer regarding the relative size or prominence of the eyes, and I have therefore had to assume that the species will enter the second section of the group. It is entirely possible, however, that this is a mistake and that it is more related to *porcatula*, in which event *regularis* will become a true species.

Group II—Type *pugionata* Germ.

This group agrees with the last in nearly all of its characters, including the unmodified middle tibiæ of the male and the deeply sinuate and acutely bidentulate elytral apices, but here, the latter are more prolonged and the pronotum differs in having a pronounced median impressed channel and subentire smooth sublateral callous vittæ, imparting a distinctly different habitus to this part of the body. In *pugionata*, the elytral tips are as much prolonged as in the next group. The only two known species are the following:—

Form elongate, the surface golden-brassy in lustre; head densely punctate, with a V-shaped central callus and two on the occiput separated by a moderate channel; prothorax shorter than wide, moderately narrowed anteriorly, the sides anteriorly broadly rounded, the surface conflu-

ently punctate, trisulcate and marked with four smooth elevated vittæ; elytra densely punctate, the sutural stria distinct, the suture elevated; alternate intervals with elongate smooth elevated spaces, the sides posteriorly oblique and gradually converging [becoming sinuate], the tips slightly prolonged and bidentate; under surface coppery, densely and coarsely punctured at the sides, nearly smooth or sparsely punctured at the middle; prosternum deeply, the first ventral moderately, sulcate, the metasternum almost flat; male with the last ventral tridentate, the medial tooth short and broadly truncate, the middle tibiæ straight and unmodified; female with the medial tooth of the apical sinus acute. Length 15.0 mm. Alabama to Pennsylvania. [= *pugionata* Lap.-Gory nec Germ.]..... **lepida** Lec.

Form moderately elongate, much smaller, convex, shining, somewhat obscure coppery above, brighter cupreous beneath; head rather small, very coarsely but not so densely punctato-rugose, with large irregular central callous spaces; eyes rather small but prominent; prothorax short, three-fourths wider than long, the sides feebly arcuate and moderately converging before the middle, subparallel and feebly sinuate basally, the apex feebly sinuate; surface with a densely punctured median channel, with the ridges broad, nearly flat and sparsely punctate, thence to the sides coarsely, confluent punctate, with a more or less incomplete and narrower callous vitta, and some smaller callous spaces still nearer the sides; elytra barely wider than the prothorax, much more than twice as long as wide, the sides gradually rounding and converging from slightly behind the middle, becoming broadly sinuate, the tips greatly produced as in the next group, deeply sinuate and bispiculate, the surface uneven, with series of small punctures suturally, rather coarsely, densely and unevenly punctate laterally, the alternate intervals with strongly elevated but very irregular, elongate and smooth greenish-black spaces, the finely punctured areolæ rather distinct; under surface axially grooved, more strongly in the male, in which the middle tibiæ are unmodified, the median lobe of the apical emargination moderately broad, truncate, the medial tooth of the female sinus long and slender. Length 11.0-12.0 mm.; width 3.6-4.0 mm. Massachusetts. [= *Buprestis pugionata* Germ. (nec Lap.-Gory)].
pugionata Germ.

In regard to *lepida* Lec., which I have been unable to examine, it is stated by Crotch (l. c. p. 87) that the prothorax is longer than wide, but, though perhaps unusually elongate, it certainly cannot even be so long as wide, as indeed definitely so stated by LeConte.

Group III—Type *divaricata* Say.

In this group the elytra are more prolonged at apex than in any other, this character giving the species a habitus which is altogether distinctive. It is the largest group of the genus and comprises a wide

range of sculpture and outline, so that there ought not to be much difficulty in recognizing the various forms, which are in great part as yet undescribed. I have restored two of Melsheimer's species, believing them to be valid, almost as distinctly so in fact as *prolongata*, of LeConte, but *caudata*, of that author, which has been viewed with suspicion, is one of the more aberrant forms of the group, indicating the quality of observational work hitherto put upon them. There may be some mistakes in my interpretations, owing to paucity of material, but the large series of *divaricata* before me, gives a very good idea of such variation as may legitimately be anticipated, so that I do not think there will prove to be any considerable amount of actual synonymy. The species and subspecies may be defined as follows:—

- Body of an elongate-oval, convex form, the elytra gradually rounding and converging behind from only slightly behind the middle; coloration generally cupreous above and beneath; species confined apparently to the extreme northeastern regions and not at present known to occur to the westward of New England.....2
- Body oblong-elongate and more parallel, the elytra rounding less gradually at the sides posteriorly and from a point always well behind the middle. 8
- 2—Elytral prolongation more or less abruptly formed, with its sides becoming parallel for some distance before the apex.....3
- Elytral prolongation gradually formed and more acuminate, not parallel even at the tip; species very small in size.....7
- 3—Prothorax broadly angulate or angularly rounded at the sides well behind the middle.....4
- Prothorax obtusely subprominent at about the middle of the sides, the latter not sharply angulate.....6
- 4—Series of punctures on the elytra not evident even toward the suture. Body moderately elongate, shining, dark and obscure in color above, the punctures and depressions deep cupreous; under surface and legs obscure cupreous; head coarsely, densely punctato-rugose, the central callus small and inconspicuous; eyes relatively small, only moderately convex and not noticeably prominent; prothorax three-fifths wider than long, the sides very feebly convergent and sinuate for two-fifths, there broadly but rather sharply angulate and thence more convergent and nearly straight to the apex, which is broadly sinuate as usual; surface sparsely punctate medially, impressed and more punctured on the median line to behind the middle, coarsely and densely so, with numerous uneven callous spots irregularly disposed, broadly toward the sides, with two strong deep punctures before the scutellum; elytra slightly wider than the prothorax, more than twice as long as wide, strongly, unevenly punctured, loosely suturally, very densely laterally, with numerous small and moderately elevated, very irregular and ramify-

ing black areas, the slightly depressed cupreous areolæ small, well defined, finely and closely punctate; prolongation cupreous; under surface and femora coarsely, closely and rugosely punctate, the axial line smoother and impressed as usual, the fifth ventral (♀) binigrocostulate medially, the median tooth of the apical sinus acute but broad at base, triangular. Length (♀) 16.0 mm.; width 5.4 mm. Massachusetts.

abrupta n. sp.

Series of fine punctures, which are rather remotely spaced, rather distinct on the elytra except laterally, the series unimpressed. 5

5—Body short and rather stout, convex, only moderately shining, cupreous, with obscure or blackish elevations, the under surface dark cupreous; head coarsely, densely punctate, canaliculate posteriorly, with numerous longitudinal rugæ centrally, the eyes moderate in size but very convex and extremely prominent, deep black in the type; prothorax fully three-fourths wider than long, the sides parallel and deeply sinuate for a little more than a third, there broadly but very sharply angulate and thence strongly converging and straight to the apex; surface broadly impressed and more closely punctate throughout the length on the median line, with a large basal impression containing two deep punctures, coarsely, deeply, subconfluently punctate and with scattered irregular callous spots laterally, feebly impressed sublaterally behind the middle; elytra nearly as in the preceding but shorter, only a little more than twice as long as wide, the surface uneven, irregularly sculptured, very densely laterally, the raised spots feebler, the cupreous areolæ almost similar, the prolongation shorter and broader; under surface nearly similar, the black ridges of the fifth ventral feebler and less approximate. Length (♂) 15.0 mm.; width 5.2 mm. New Hampshire (Hampton). **biangulata** n. sp.

Body elongate-oval, convex, shining, dull cupreous, the elytra obscure greenish throughout though varied by feeble subænescent reflections, the prolongation not different in color; under surface dark cupreous; head coarsely, unevenly rugose and punctate, with a depression before the central callus; eyes rather well developed, somewhat prominent; prothorax barely three-fifths wider than long, the sides subangularly prominent slightly behind the middle, thence subparallel and feebly sinuate to the base and converging and broadly arcuate to the apex; surface canaliculate and densely punctured before the middle and simply more closely punctate posteriorly on the median line, the basal pit large, deep and single, the sculpture otherwise nearly as in the preceding; elytra aberrant, similar to *abrupta* in form though more gradually attenuate, but almost uniformly punctate, without densely punctate cupreous areolæ and with the raised spots feeble, small and few in number; punctured series unimpressed and scarcely traceable, except near the suture; under surface nearly as in *abrupta*. Length (♀) 17.0 mm.; width 5.8 mm. Massachusetts. **inflatula** n. sp.

6—Form elongate-oval, convex, rather shining, cupreous with the elevations black, brighter cupreous beneath; head coarsely, very densely but subevenly punctato-rugose, the eyes moderately convex and rather

prominent; prothorax fully three-fourths wider than long, the sides obtusely but subangularly prominent at the middle, thence sul parallel and feebly sinuate to the base and converging and feebly arcuate to the apex, the median line obsoletely impressed, deeply so anteriorly and with a very feeble elongate central callus, densely punctate anteriorly, the basal fovea deep, single or double; punctures laterally coarse, deep and confluent, with few irregular callous spots near the sides but with more forming an irregular broken vitta at lateral fourth, the impressions obsolete; elytra scarcely wider than the prothorax (♂), or slightly wider (♀), much more than twice as long as wide, the prolongation generally very abruptly formed and parallel, broader than usual though rather longer than wide; surface strongly, almost uniformly punctate, densely and rugosely at the sides, with numerous callous spots, which are elongate and regular suturally but elsewhere small, very irregular and ramifying transversely and longitudinally, the areolæ not well defined and not more finely punctate; under surface as usual. Length 14.2-19.0 mm.; width 4.7-6.4 mm. Massachusetts.

pisciformis n. sp.

A—Similar to the preceding but narrower, paler and brighter cupreous, the elytra with the elevations more uniformly elongate and regular throughout and the sides more gradually converging posteriorly, with the prolongations much less abrupt, more extended and very noticeably narrower in form, brighter cupreous in color; eyes more prominent, especially in the male. Length 16.5-17.2 mm.; width 5.3-5.8 mm. Massachusetts **longicauda** n. subsp.

7—Body moderately stout, convex, shining, cupreous with black elevations, dark cupreous beneath; head moderately coarsely, very densely and subevenly punctate, with a small transverse central callus, the eyes rather small, moderately prominent; prothorax two-thirds wider than long, the sides converging and broadly rounded anteriorly, gradually becoming parallel and sinuate behind the middle; surface feebly impressed and more punctured along the middle, deeply and more narrowly impressed anteriorly, the two ante-scutellar punctures conspicuous; punctures laterally only moderately coarse, crowded but not confluent, with callous spaces and sublateral broken vitta nearly as in the preceding, the impression obsolete; elytra at base wider than the prothorax, the humeral angles well exposed; sides parallel, gradually rounding and converging posteriorly from about the middle, becoming broadly, feebly sinuate to the tip of the unusually acuminate prolongations, the latter strongly carinate medially on the disk; surface much as in the preceding species, the series of fine punctures readily traceable suturally; under surface as usual. Length (♂) 13.2 mm.; width 4.5 mm. Massachusetts..... **cupreola** n. sp.

A—Similar to the preceding but narrower and more elongate, the head a little smaller, more coarsely, confusedly punctate, with the ramifying interspaces broader and more ruguliform; eyes nearly similar but scarcely so prominent; prothorax shorter and broader, not impressed along the median line except anteriorly and more coarsely and

confusedly, densely punctured laterally, with the callous spots more diffused; elytra at base much less evidently wider than the prothorax, the sides still more gradually converging posteriorly, and, from a little behind the middle, the surface nearly similar but with the black elevations more numerous, irregular and confused, except near the suture, the small and clearly defined, cupreous areolæ deeper. Length (♂) 13.0 mm.; width 4.3 mm. Massachusetts. *filiolá* n. subsp.

- 8—Prothorax narrowed gradually from base to apex. Form moderately stout, convex, shining, cupreous with the smooth parts blackish above, rather dull cupreous beneath; head confusedly and densely punctatopunctate, more or less impressed along the median line throughout, with a central interrupting callus; eyes moderately prominent; prothorax at base three-fourths wider than long, with the sides slightly prominent behind the middle; surface feebly impressed and closely punctate along the median line, more deeply anteriorly, the two basal punctures strong; punctures laterally only moderately coarse, very dense on each side of the sublateral ragged line of callus, coarser and very dense with much mingled callus near the sides; elytra not evidently wider than the base of the prothorax, twice as long as wide to the base of the cauda, the sides gradually rounding and converging in apical two-fifths, the prolongations gradual, becoming parallel and strongly divaricate; surface densely, rugosely punctured laterally, finely, sparsely so suturally, without distinct punctured series except feebly near the suture and without distinct finely punctured areolæ, the black spots only feebly elevated, elongate suturally but small and irregularly ramifying elsewhere; female with the medial terminal tooth short, broad and triangular. Length (♀) 18.4 mm.; width 6.2 mm. Pennsylvania.

caudata Lec.

- Prothorax subparallel and generally slightly sinuate at the sides behind the middle. 9
- Prothorax evidently though gradually narrowed basally, the width at the base more or less obviously less than at the middle, where the sides are more or less inflated though rounded. 19
- 9—Sides of the prothorax obtusely but sharply angulate at the middle. Body stout, convex, partially shining, black with the punctures green anteriorly, the elytra, except suturally and throughout the width basally, dull cupreous and green intermingled, the elevations black as usual; under surface in great part black, the punctures cupreous; head confusedly but not very densely punctate, with numerous small isolated callous spots which are very irregular in form, the eyes rather small but prominent; prothorax three-fourths wider than long, the sides sinuate in basal, converging and nearly straight in apical, half, sparsely punctate medially, with a small apical punctate impression and a closely double basal pit, the punctures laterally not very coarse and everywhere isolated, mingled with much black callous area; surface unimpressed; elytra not wider than the prothorax, between two and three times as long as wide, the sides gradually rounding and converging in posterior two-fifths, the prolongation gradually formed but

long and becoming parallel apically, obtuse, each with a strong, anteriorly bifurcating carina; surface almost even, with but very few scarcely elevated and almost evenly oblong smooth spots, strongly, coalescently punctate laterally and with even, unimpressed series of punctures, nine in number, only the extreme lateral series being indistinct; under surface rugose as usual, deeply sulcate along the entire axial line to the tip of the first ventral. Length (σ) 20.0 mm.; width 6.4 mm. Pennsylvania (Allegheny).....*subæqualis* n. sp.

Sides of the prothorax sometimes slightly prominent medially, but always rounded from a dorsal viewpoint.....10

10—Body above deep and uniform blue-black throughout, moderately slender and convex, rather dull in lustre; head very densely, uniformly punctato-rugulose, impressed along the median line throughout; eyes prominent, moderate in size; antennæ piceous-black basally, not metallic; prothorax three-fourths wider than long, the sides angularly prominent at the middle, parallel and feebly sinuate to the base, moderately converging and barely arcuate to the apex; surface with a large oval impressed and punctate area before the middle, flattened and less punctate thence to the deep single basal pit, laterally coarsely and very densely punctate, obliquely, deeply impressed behind the middle, with a small prominent callus before the middle and another at base in the same sublateral line, also a small submedian callus near the lateral margin; elytra slightly wider than the prothorax, between two and three times as long as wide, the sides gradually rounding and converging in apical two-fifths, rather abruptly sinuate at the base of the prolongations, which are short, broad and parallel, separated by a large acute notch; surface almost even, coarsely punctured except near the suture, very densely laterally, the striæ very distinct and impressed to beyond the median line, the callous spots small and very few in number, feeble, the areolæ few in number, and, behind the middle, large, shallow, less coarsely but not at all finely punctate and not metallic; under surface very deeply sulcate along the axial line. Length (σ) 18.5 mm.; width 6.0 mm. New York (Adirondack Mts.),—J. F. Kemp...*nigra* n. sp.

Body above metallic æneous, bright to obscure, sometimes moderately cuprascent.....11

11—Sides of the elytra more strongly rounding and converging behind, the prolongations rather abruptly formed and short, parallel.....12

Sides of the elytra more gradually rounding and converging through a longer distance posteriorly, the prolongations very gradually formed, longer and more acuminate.....15

12—Elytral striæ strong and distinct, sometimes nearly to the sides but not sulciform.....13

Elytral striæ very fine, sometimes traceable only to the median line.....14

13—Body rather stout, moderately convex, shining, æneo-cupreous, the under surface slightly more intense in color; head coarsely, very densely punctato-rugose, with sparse callous spots, more or less impressed along the median line; eyes only moderately prominent; antennæ

æneo-cupreous; prothorax four-fifths wider than long, the sides obtusely subprominent at the middle, thence strongly converging and evidently arcuate anteriorly, and parallel and broadly sinuate basally; surface rather more punctured but not or only feebly impressed along the middle, except the constant and distinct impressed spot near the apex, the basal pit single or double, toward the sides strongly, obliquely impressed behind the middle, the impression generally deep and conspicuous, the punctures coarse and dense, with the usual callous spots very irregular; elytra nearly as in *nigra* in outline, the prolongation not quite as long as wide in its parallel part as a rule, obtuse at the tips but with the sutural angle sometimes acutely produced; surface rather rough, coarsely, densely punctured laterally, finely and sparsely near the suture, the striæ rather coarse, not much impressed but visible sometimes throughout the width, strongly punctured; callous spots strong, elongate suturally, smaller and ramifying elsewhere; areolæ not very well defined and not much less coarsely punctured; under surface as usual, the axial sulcus stronger in the male, and, on the prosternum, broader, more concave and more pubescent; medial apical tooth (♀) short, broad and triangular but variable as usual. Length 17.0-20.5 mm.; width 5.6-6.8 mm. New York, Pennsylvania, Indiana, Illinois, Kentucky and Wisconsin (Bayfield). [= *Buprestis divaricata* Say and *D. dubia* Mels.; also *Buprestis acuminata* Lap.-Gory nec Pall. (*acuminata* Pall., is European)]. **divaricata** Say

A—Similar in general form and size but very dark and obscure æneous, obscurely cuprascent beneath, more shining, the head more coarsely rugose, the eyes a little larger and more prominent, the pronotum more coarsely punctured laterally, with larger and very irregular smooth spaces and the impressions obsolete, the median parts except anteriorly very remotely punctate, not at all impressed behind the middle, the basal pit similar; elytra with the punctures everywhere well separated and almost to the side margins, where, however, they become more or less transversely coalescent, the striæ obvious and impressed. Length (♀) 19.0 mm.; width 6.1 mm. New York (Buffalo). **limula** n. subsp.

B—Similar in general form but smaller and more slender, rather less bright and darker æneous, the under surface cupreous, with much metallic green lustre medially; head with the depressed medial spot bright green; eyes similar; prothorax similar but with the sides obtusely angulate at the middle, the converging sides thence to the apex straight; surface less impressed behind the middle, with the sculpture toward the sides much coarser; elytra similar but more elongate, the surface very much more coarsely and confluent punctate-rugose, except near the suture, the impressed striæ evident almost throughout the width, the black smooth spots small but strongly elevated, widely separated; two ridges of the fifth ventral strong as usual in this group. Length (♀) 16.5 mm.; width 5.2 mm. Indiana. **incisa** n. subsp.

Body less stout and more convex, shining, dark æneous with black spots as

usual, more cupreous and greenish beneath; head nearly as in *divaricata* but with the eyes relatively a little larger and less widely separated; prothorax similar but with the sides anteriorly more convergent and nearly straight, posteriorly much less sinuate, the sculpture more even and with the post-median impressions much more feeble; elytra nearly as in *divaricata* throughout but with the prolongation, though similarly abrupt, still shorter, the parallel part nearly twice as wide as long; punctuation distinct and clear-cut but as usual coarse and confluent laterally, the striæ less coarse though very distinct to beyond the median line; under surface and sexual characters similar, except that the two ridges of the fifth ventral are shorter, more apical and very closely approximate, separated only by a narrow groove,—a very variable feature however. Length (♀) 17.0 mm.; width 5.8 mm. New York (Buffalo)..... **parumpunctata** Mels.

- 14—Form rather stout and convex, rough in sculpture, moderately shining, largely æneo-cupreous above with many small green clouds in the depressed areas of the elytra, the entire frontal margins and labrum also bright green; under surface cupreous and bright green, the legs green with feeble cupreous reflection; head very coarsely rugose, more finely punctato-rugose anteriorly, the eyes only moderately convex and not prominent; prothorax nearly as in *divaricata* but less closely sculptured throughout, obliquely though moderately biimpressed behind the middle; elytra but little wider than the prothorax, almost as in *divaricata* in outline and in the broad, obtuse and rather abruptly formed prolongation, but differing in its fine and finely punctate striation which is not visible much beyond the median line, the black callous spots numerous and strongly elevated, the depressed areolæ large, confused, with the close punctures coarse but smaller than the others; under surface rugose, nearly smooth and impressed along the axial line as usual but not obviously less rugose along the middle of the abdomen; median abdominal tooth (♀) rather long and slender. Length (♀) 18.2 mm.; width 6.2 mm. Ohio..... **aurichalcea** Mels.

Form somewhat similar but smaller and with relatively smaller head and prothorax, darker and more uniform æneo-cupreous above and but moderately shining, cupreous with some green glints beneath; head less coarsely, densely punctato-rugose, with a better defined and depressed, more finely punctate central spot, which is viridi-æneous as well as the labrum and the median apical parts of the front; eyes moderately large and more prominent; prothorax three-fourths wider than long, the sides subparallel, very broadly arcuate, gradually moderately converging anteriorly and becoming sinuate in only basal third, the surface less coarsely rugose, though closely punctured laterally and similarly unimpressed along the middle except very feebly anteriorly, the basal puncture small and deep, the oblique impressions diffuse and moderate; elytra evidently wider than the prothorax, similar in outline but with the obtuse prolongation narrower and relatively a little longer, though with the parallel part not longer than wide, similarly subabruptly formed; surface more uniform and less rugose, the fine and finely punc-

- ured striæ visible to some extent throughout the width, the lateral margins much more brilliantly metallic æneous and green than the remainder of the disk, the elevations moderate, the areolæ not well defined and not densely punctate, except those behind the middle; under surface similarly rugose and sulcate, the prosternal sulcus broadly concave but only moderately pubescent in the male. Length (♂) 15.8 mm.; width 5.2 mm. Vermont (Bennington Co.) . . . *æstiva* n. sp.
- 15—Elytral striæ fine. Body rather narrow, convex and shining, obscure æneo-cupreous, the under surface brighter, cupreous; head densely and confusedly compresso-rugose, with a broad entire median impressed line, the eyes moderately prominent; prothorax fully four-fifths wider than long, the sides rather prominently rounded at the middle, thence converging and feebly arcuate to the apex and parallel and broadly sinuate to the base; surface not impressed medially, except narrowly and rather deeply anteriorly, the basal pit deep, only very widely and diffusely subimpressed laterally behind the middle, coarsely, closely punctate and confusedly rugose; elytra slightly more than twice as long as wide, just visibly wider than the prothorax, the sides gradually rounding and converging in posterior two-fifths, becoming but very feebly and broadly sinuate, the prolongation rather short and broad but altogether gradual in formation, obtusely truncate, not becoming parallel at tip; surface coarsely and almost regularly punctured, coalescently so toward the sides, the callous spots moderately convex, few in number and widely separated; areolæ wanting; fifth ventral (♀) closely bicostate, the median apical tooth small but acute. Length (♀) 15.5 mm.; width 5.1 mm. New Hampshire (Hampton) . . . *rustica* n. sp.
- Elytral striæ coarse 16
- 16—Pronotum more or less evidently and generally deeply, obliquely impressed sublaterally behind the middle 17
- Pronotum without oblique impressions behind the middle 18
- 17—Form subparallel, moderately broad and convex, rather shining, obscure cupreous, darker beneath; head coarsely, confluent and very densely but somewhat evenly punctato-rugose, feebly depressed along the middle, the eyes only moderately prominent; prothorax nearly as in the preceding but with the sides more deeply sinuate basally, the base somewhat narrower than the middle; surface more or less impressed and closely punctate throughout the length medially, rather deeply, confusedly and coarsely punctato-rugose laterally; elytra slightly wider than the prothorax and evidently more than twice as long as wide, sometimes feebly inflated subposteriorly, the sides very gradually rounding and obliquely converging in apical two-fifths, the prolongation moderately wide, obtuse, gradually formed, the incisure distinct and deep but narrow; surface coarsely sulcate except laterally, the sulci coarsely punctate, the intervals convex, the sublateral interval posteriorly more prominent than usual, the sculpture densely confused laterally, the callous spots moderate and rather few in number, the areolæ not well defined except suturally and posteriorly; under surface as usual, the apical tooth (♀) small but very aciculate, sometimes wholly want-

ing, the sinus then becoming narrower. Length 15.7-20.5 mm.; width 5.2-6.7 mm. Michigan, Indiana, New York (Adirondacks) and New Hampshire.....**subcuprea** n. sp.

- A—Similar to the preceding but in the male narrower and more parallel, the elytra not wider than the prothorax, narrowing more rapidly in about apical third and drawn out at apex to a narrower but similarly gradual prolongation, the prosternal channel wider than in *subcuprea* (♂), leaving much narrower lateral ridges, the metasternum also with an evidently broader and less posteriorly attenuated furrow. Length (♂) 17.7 mm.; width 5.4 mm. New Hampshire.
pertinax n. subsp.

Form slightly stouter, convex, shining, grayish-metallic, not at all cupreous above though bronzed beneath; head nearly as in *subcuprea* but more impressed along the median line almost throughout, the eyes only moderately developed, somewhat prominent; prothorax less transverse though rather more than three-fourths wider than long, nearly similar in outline though much less sinuate at the sides basally; surface deeply but not very broadly sulcate along the median line, the sulcus more closely punctured as usual, very coarsely, extremely densely and confusedly punctured laterally, with an occasional callous spot, the oblique impressions not so deep as in the preceding; elytra somewhat more inflated, and, behind the middle, fully a fourth wider than the prothorax, the sides very gradually rounding behind, becoming similarly gradually and broadly sinuate to the tip of the moderate prolongation, which is more broadly obtuse at apex; surface with rather coarse sub-sulciform series of coarse punctures, the sculpture dense and very confused laterally, the subsutural carina posteriorly sharply defined but elsewhere with very confused and irregular elevated spots and having but few well defined areolæ; under surface as usual in this group, the medial apical tooth (♀) very short and broad, triangular. Length (♀) 20.5 mm.; width 6.8 mm. Colorado.....**sulcatula** n. sp.

- 18—Body larger, stout and convex, moderately shining, obscure bronze, brighter beneath; head very coarsely and confusedly rugose, with a broadly impressed median line interrupted centrally by a V-shaped callus; eyes well developed but rather feebly convex, scarcely at all prominent; prothorax nearly as in the preceding but relatively smaller, the sides behind the middle parallel and deeply sinuate nearly as in *subcuprea*, the surface not impressed though more plentifully punctate along the middle, except the usual subapical spot, the basal pit with sloping posterior surface, the sculpture laterally very much confused, being a mixture of coarse and dense punctures and large ramifying callous areas; elytra at base distinctly wider than the prothorax, the sides nearly straight, gradually rounding and converging in posterior two-fifths, the gradually formed cuprascent prolongation unusually short and broad, with the sutural angles minutely aciculate; surface with distinct close-set punctures which are only partially confused near the sides, the black callous spots numerous and strongly elevated, giving a coarsely rugose general surface, the series not much impressed but

very evident except laterally, coarsely punctured suturally, the areolæ not well defined; under surface coarsely rugose, smoother and channeled axially as usual, the apex of the fifth ventral (♀) with the sinus small, the lateral lobes very broad and the median tooth broadly triangular. Length (♀) 20.0 mm.; width 6.7 mm. Vancouver Island (Victoria) **vancouveri** n. sp.

Body rather small in size and less stout, moderately convex, shining, obscure brassy-bronze in color, brighter beneath; head densely, moderately coarsely and subevenly punctato-rugose, with a central depression before a small transverse callus; eyes rather small and not very prominent; prothorax fully four-fifths wider than long, the sides broadly, subevenly arcuate and converging from slightly behind the middle to the apex, parallel and sinuate in but little more than basal third; surface not or scarcely impressed medially, except narrowly so anteriorly, the basal pit triangular and deep, densely, coarsely and confusedly punctate laterally, with a few callous spots; elytra but slightly wider than the prothorax, parallel, gradually and broadly rounding and converging in apical two-fifths, the prolongation gradually formed, attenuate and rather long; surface with rather coarse striæ which are visible almost throughout, the striæ only feebly impressed but coarsely and unusually distinctly punctured, the sculpture coarse, dense and confused laterally, the callous spots almost wanting before, moderately conspicuous behind, the middle, the areolæ not defined; under surface rugose and axially sulcate, the last ventral (♂) with the deep emargination transversely rectilinear at the bottom, the lobe occupying the entire width. Length (♂) 15.5 mm.; width 5.0 mm. Wisconsin. **angusticauda** n. sp.

19—Pronotum not impressed along the median line except anteriorly. . . . 20

Pronotum more or less deeply sulcate throughout along the middle. 21

20—Form rather narrow, elongate and parallel, moderately convex, shining, obscure gray-metallic in lustre, scarcely bronzed beneath; head coarsely, confusedly compresso-punctate, feebly but unequally impressed along the middle, the eyes well developed and prominent; prothorax nearly twice as wide as long, the sides prominent, almost obtusely angulate at the middle, where the width is but slightly greater than at base, thence gradually converging and feebly arcuate to the apex, broadly sinuate basally; surface obliquely impressed sublaterally behind the middle, coarsely, confusedly punctato-rugose laterally, with a definite callous spot only before and behind the impression; elytra nearly two and one-half times as long as wide, barely wider than the prothorax, the sides very gradually rounding and converging in apical two-fifths, becoming gradually and broadly sinuate, the prolongation long, somewhat attenuate and cuprescent, the surface unevenly sulcate, the elevations only moderate in number and prominence, the foveolæ rather small and definite posteriorly but not more finely punctate; under surface rugose and deeply sulcate axially, the last ventral (♀) with the apical sinus but little wider than deep, the tooth gradually and very finely aciculate. Length (♀) 19.0 mm.; width 6.0 mm. Wisconsin (Bayfield),—H. F. Wickham. **subargentea** n. sp.

Form much stouter, convex, subinflated posteriorly, rather dull, blackish with the depressions very obscure æneous above, the under surface very obscure æneo-cupreous and black; head densely compresso-rugose, impressed along the middle, the eyes smaller and only moderately prominent; prothorax strongly, subangularly prominent at the sides just before the middle, thence strongly, arcuately narrowing to the apex, less strongly so with feebly sinuate sides to the base, very nearly twice as wide as long, the surface deeply, obliquely impressed behind the middle sublaterally and also with a deep rounded impression before the middle at each side of the median tumid surface, coarsely, densely and confusedly punctato-rugose laterally; elytra slightly wider than the prothorax, the sides gradually rounding and then rather rapidly converging in apical two-fifths, the prolongation narrow, moderate in length but not abruptly formed; surface rugose laterally, coarsely punctato-sulcate thence suturally, the surface sublaterally with the elevations bordering the large areolæ posteriorly unusually strong, giving a feebly undulated appearance; female with the terminal sinus narrow and as deep as wide, the tooth very small and broadly angulate, not extending posteriad through a fourth of its depth. Length (♀) 18.5 mm.; width 6.2 mm. Ontario **severa** n. sp.

21—Thoracic sulcus narrow and better defined 22

Thoracic sulcus very broad, much dilated toward the base, less sharply defined at the sides and generally with a small central callus..... 24

22—Elytra with only a series of levigated spaces near the margin. General characters nearly as in *tenebrosa* (!) except that the pronotum has no levigated elevations and the impressions, except the median channel, which is better defined, more obsolete; elytra distinctly furrowed, especially near the suture, the furrows punctured; the attenuated apex of the elytra is longer than in *tenebrosa*, rather truncated and beneath is of a dark blue; the prosternum is linear and the base of the abdomen scarcely channeled; the teeth of the fifth ventral (♀) are longer than in *tenebrosa* and of a brilliant ruddy-copper. Length (♀) 15.5–18.0 mm. British America, (found in latitude 54° and at Cumberland House). [= *Stenuris tenebrica* Kirby]..... **tenebrica** Kirby

Elytra with levigated spaces almost throughout as usual..... 23

23—Color gray-metallic, often pruinose [as usual when fresh]; prothorax more than twice as wide as long, the sides anteriorly strongly rounded, posteriorly subsinuate, punctate, canaliculate, at each side behind the middle obliquely and deeply impressed; elytra deeply striate, the intervals with more obscure oblong spaces which are smooth and rather elevated, posteriorly obliquely attenuate, prolonged, the apices rounded, scarcely divaricate; beneath sparsely pubescent, axially sulcate as usual; last ventral of the male tolerably deeply emarginate at apex, sinuate; (♀) with the lateral teeth rounded, the medial acute. Length 19.2–21.2 mm. Lake Superior; [also British America]..... **prolongata** Lec.

A—Form more elongate and parallel, the elytra narrowing more rapidly behind in scarcely more than apical third, the prolongation long,

gradually formed and decidedly narrow; prothorax twice as wide as long, prominently inflated and rounded at about the middle, the sulcus evident but shallow, deeper anteriorly, the sublateral impressions deep, the surface laterally very confusedly but subevenly punctato-rugose; elytra parallel, not wider than the prothorax, more elongate, coarsely sulcate, the sulci coarsely punctate, obliterated only near the sides, the elevations small and not conspicuous, the sublateral interval posteriorly slightly more prominent and more or less broken as usual; apical sinus (♀) rather small, twice as wide as deep, the tooth rather long, slender and aciculate. Length (♂, ♀) 19.0-21.2 mm.; width 6.2-6.8 mm. British America **longipennis** n. subsp.

Color obscure bronze, a little more coppery beneath though dark; body smaller, moderately convex, rather dull; head coarsely punctato-rugose, impressed along the middle, the eyes moderate, rather prominent; prothorax fully four-fifths wider than long, the sides evenly and broadly rounded, strongly converging anteriorly, feebly so and slightly sinuate basally; surface deeply sulcate, with a large deep basal pit, coarsely, densely and confusedly but almost evenly punctato-rugose laterally, the oblique impressions feeble but evident; elytra slightly wider than the prothorax, very gradually rounding and converging at the sides in apical two-fifths, the prolongation moderately wide, rather short and gradually formed, the median notch large and deep; surface very confusedly rugose throughout, the elevations numerous, small and irregular in form, the sulci only indicated by vague lineiform impressions, which are coarsely punctate but only definitely so near the suture; prosternum of the female with an unusually broadly concave rugose impression, rapidly narrowing posteriorly, the metasternum broadly concave, the first ventral impressed only anteriorly; medial tooth of the apical sinus rapidly, very finely aciculate. Length (♀) 16.0 mm.; width 5.6 mm. New York **callosa** n. sp.

- 24—Form stout, rather convex, not very shining, dusky cupreous, brighter beneath; head coarsely, densely compresso-rugose, feebly impressed along the middle, the eyes moderate, prominent; prothorax nearly four-fifths wider than long, the sides prominently rounded rather behind the middle, thence strongly converging and slightly arcuate to the apex and feebly converging and very slightly sinuate to the base; surface with a broad and shallow, densely sculptured channel inclosing a small central callus and ending at base in a broad deep cavity, thence to the sides coarsely, very densely punctate, with about three callous spots, obliquely impressed behind the middle; elytra not evidently wider than the prothorax, only slightly more than twice as long as wide, gradually rounded and converging at the sides in apical two-fifths, the prolongation gradually formed but rather broad and short, the cleft narrow and deep; surface somewhat coarsely subsulcate almost throughout the width, the sulci rather coarsely and irregularly, not distinctly punctate, the elevations numerous and strong but for most part small and irregular, the depressed spots brighter metallic, strongly punctate; prosternum (♀) as broadly concave and roughly sculptured as in the

male of other species, the concavity limited only by a narrow ridge at each side, the median apical tooth triangular but finely aciculate. Length (♀) 17.5 mm.; width 6.2 mm. Lake Superior (Whitefish Point).....**rigida** n. sp.

Form very stout, moderately convex, the lustre feeble, deep black throughout above, feebly metallic at the side margins, bronzed beneath; head coarsely, densely and subevenly punctato-rugose, the eyes moderately developed but only slightly convex; prothorax in outline nearly as in *rigida* but with the lateral inflation at the middle, the sulcus not quite so broad but ending posteriorly in a similar large transverse cavity, the central callus prolonged posteriorly in a fine line; surface from the bounding ridges to the sides coarsely, very densely and confusedly but evenly punctato-rugose, without callous spots and not obliquely impressed behind the middle; elytra at least a third wider than the prothorax, scarcely more than twice as long as wide, the sides rather abruptly rounding and strongly converging posteriorly in more than apical two-fifths or from only slightly behind the middle, the prolongation gradually formed, not very long and somewhat finely acuminate; surface nearly even, with fine, unevenly punctured sulci throughout the width, densely rugulose laterally, the elevations small, few in number and inconspicuous; under surface (♀) with the prosternal concavity not quite so broad as in *rigida* and more coarsely sculptured, the ridges of the fifth ventral uniting at the apex, the latter narrow, wholly occupied by the shallow sinus, the lateral lobes acute, the median tooth narrowly triangular, very acute and extending beyond the lateral lobes. Length (♀) 19.0 mm.; width 6.8 mm. Ontario (Port Hope),—C. J. S. Bethune).....**tetrica** n. sp.

I have identified as *prolongata* Lec., a female specimen from an unrecorded locality in British America. It answers the description very well, except as to the proportions of the prothorax, the latter being evidently less than twice as wide as long, but this is unimportant, since the width in terms of length was habitually overdrawn by LeConte, as in the case for example of *Spinthoptera valens*, previously referred to. The elytra are somewhat inflated behind the middle, the sides gradually rounding and rather rapidly converging in more than apical two-fifths, the attenuated apex much prolonged and rather acuminate but gradually formed and very different from the same part in *divaricata* and allies, with which the species was united in complete synonymy by Kerremans. The above description of *prolongata* is wholly drawn from the characterization published by LeConte in his monograph (1859). If we admit that *tenebrica* Kirby, belongs to this group, and not near *tenebrosa*, of the next group, and the few published characters seem to warrant this assumption, it

must be closely allied to *prolongata* though probably a smaller species. The statement of Kirby that the elevated spots are only evident near the sides of the elytra, refers to the greater prominence observable, as a rule, in the submarginal interval behind the middle; this is particularly pronounced in certain species of *Buprestis*, as well, and is a general character, at least in this part of the family. *Longipennis* bears much the same relationship to *prolongata*, that *pertinax* does to *subcuprea*, and in both cases the subspecific type comes from the same locality as the species to which it is attached. In the latter case, the long and parallel-winged type of the assumably subordinate form, is a male, having besides some striking differences in the prosternal groove, so that I have given it subspecific rank provisionally. In the case of *longipennis*, however, the aberrant long-winged form is represented by both male and female. It may be that we have here evidences of true asexual dimorphism, but the material at hand is not sufficient to decide this at present. The general appearance of the subspecies in each case departs remarkably from that of the species, to a greater degree in fact than the general differences in facies distinguishing a number of allied though evidently distinct species. This is apparently therefore one of those puzzles that occasionally arise in taxonomic work, with incomplete material and in the absence of biologic evidence.

Group IV—Type *horni* Cr.

This is a small and very local group, peculiar to the Southern Pacific coast fauna. The only described species is the following:—

Form moderately stout, elongate-oval, not very convex or shining, obscure bronze above, with the margins of the pronotum and elytra and the occiput behind the eyes generally brighter or greenish, the under surface brighter cupreous; head coarsely punctato-rugose, strongly impressed along the median line throughout, rather more hairy in the male though sparsely, the eyes well developed and rather prominent; prothorax not quite twice as wide as long, the sides parallel and straight to the middle, there rounding and thence strongly converging to the apex, which is feebly sinuate; surface moderately impressed and more punctured along the median line, the impression with a feeble slender callus, coarsely, deeply and densely punctate with intermingled irregular callous spots from the broad and feebly tumescent ridges to each side and very broadly, diffusely impressed obliquely behind the middle, the basal pit deep, single; elytra barely at all inflated behind, twice as long as wide and only slightly wider than the prothorax, the sides grad-

ually rounding and converging in apical two-fifths, the short and broad prolongation rather abruptly formed, more cupreous and with the outer angles moderately rounded, the sutural feebly dentiform; surface sparsely pubescent, with moderate shallow, closely and coarsely punctate sulci in about inner half, densely, coarsely punctured, confluent so laterally, the callous spots strong but small and very sparse; under surface rugose, deeply sulcate along the axial line including the first ventral, the fifth with two vestigial ridges, the apex transversely emarginate (♂), or broadly and obtusely rounded (♀). Length 16.5-18.7 mm.; width 6.0-6.8 mm. California (Tulare Co.)..... *horni* Cr.

A—Similar but larger, stouter, more dusky and obscure in coloration, the head more coarsely rugose, the prothorax feebly inflated near the middle of the sides, the medial sulcus obsolescent, the punctures laterally denser and the anterior callus near lateral fourth much stronger; elytra nearly similar but with the outer angles of the prolongation much more broadly rounded; fifth ventral (♀) without trace of ridges and with the apex more acuminate and very narrowly rounded. Length (♀) 17.7 mm.; width 6.9 mm. California (Kaweah)..... *ampliata* n. subsp.

The variety, mentioned by Crotch, having the last ventral segment of the female tridentate at tip, I have not seen. It is probably a widely distinct species if the sexual characters are correctly stated.

Group V—Type *tenebrosa* Kirby.

The general habitus in this group differs greatly from that characterizing any of the preceding, the body being shorter and relatively broader, with the prothorax more transverse as a rule, generally inflated at the sides before the middle and with the surface much more unevenly impressed and sulcate. The elytra are more or less rapidly narrowed behind and briefly produced, the prolongation either narrow and acuminate as in *tenebrosa* and related species, or more broadly obtuse as in *crassicollis*, where it approaches the form described above in *horni*, but the apices are in all instances entire at tip. The species are rather numerous and more fully described by various early authors than in either the *obscura* or *divaricata* groups. After rather attentive study of the literature and of such material as is at hand, I would propose the following arrangement of those discovered thus far:—

Pronotal sulcus generally broader, densely punctate, having a small central callus by which it is in no measure interrupted; middle tibiæ of the male unmodified; head with an elevated transverse line between the eyes... 2

Pronotal sulcus narrower, with a large central callus by which its continuity

is more or less completely interrupted; middle tibiæ of the male obtusely dentate within; head without a callous band between the eyes. . . . 7

- 2—Prothorax subparallel, only feebly inflated at the sides near apical third. Body elongate, subparallel, moderately convex, dull in lustre, dark brown or blackish and without evident metallic reflection above, similar beneath though more shining, nearly glabrous above, the head densely but not very coarsely punctato-rugose, with a strong callous transverse band between the eyes and two longitudinal callous areas at base; eyes moderate, not very prominent; prothorax three-fifths wider than long, the sides parallel and very feebly sinuate from the anterior inflation to the base, converging anteriorly; surface finely, densely punctate throughout, except the rather approximate medial ridges, and thence to the sides obliquely, though very moderately, impressed behind the middle and with an elongate anterior and small basal callus in a line nearer the medial ridges than the outer margin; central callus small and finely prolonged posteriorly; elytra distinctly wider than the prothorax, twice as long as wide, the sides parallel, gradually rounding and oblique in posterior two-fifths, becoming only very faintly sinuate near the obtusely acuminate apices, which are not evidently prolonged; surface finely, deeply, very closely and uniformly punctato-cribrate throughout, with series traceable to the sides of very coarse and well spaced perforate punctures, also having some elongate callous smooth lines on the alternate intervals, especially toward the suture; under surface not coarsely punctato-rugulose laterally, smooth and but feebly impressed axially, the male with the middle tibiæ unmodified, the apex of the fifth ventral with a shallow transverse emargination, the female with the apex narrowly and prominently rounded and entire. Length 11.0–13.7 mm.; width 4.0–4.8 mm. Massachusetts, Pennsylvania and District of Columbia. [= *Buprestis transversa* Say] **punctulata** Schönh.

A—Similar to the above but larger and stouter, the head larger, with relatively smaller eyes, the transverse ridge finer and more acutely elevated but not quite so strong, the prothorax nearly similar but with the sublateral line of callus only narrowly interrupted or entire; sides of the elytra similarly oblique posteriorly but with the sinuation rather more obvious; prosternum of the male broadly, feebly concave and closely, coarsely punctured, scarcely at all hairy, the abdomen strongly punctured throughout. Length (♂) 14.8 mm.; width 5.6 mm. North Carolina (Southern Pines) **pinorum** n. subsp.

Prothorax constricted and sinuate at the sides basally, broadly inflated before the middle. 3

- 3—Elytral apices rather broad and obtuse, not evidently prolonged, the form being nearly as in the preceding species. Body stout, oblong, moderately convex, feebly shining, dark cupreous-brown above, sometimes with small green areas and occasionally with the elytra almost entirely green, the under surface dark purplish-cupreous; head coarsely, densely punctato-rugose, with a sharply elevated transverse biangulate callous band between the eyes and two small approximate callous spots at base; eyes rather prominent; prothorax three-fourths wider than long,

very densely, uniformly punctured, with two strong median and two sublateral callous vittæ, the latter broadly interrupted by the concave impressions, also with a small central callus and an irregular elevation near each side margin; scutellum small, strongly transverse; elytra much wider than the prothorax, three-fourths longer than wide, the sides rather abruptly rounding and strongly oblique in apical third, becoming evidently sinuate near the tips, the latter transversely truncate, with the angles not at all rounded, the sutural slightly prominent; surface extremely densely, not coarsely punctate throughout, with unimpressed series of rather large but more or less obscure punctures though coarse and perforate in certain parts near the suture, the alternate intervals with moderately elevated and smooth elongate-oblong callous spots, varying greatly in size; under surface (♀) rather coarsely and subrugosely but not very densely punctate, the axial line only feebly impressed, the prosternum broadly, very feebly concave and coarsely, densely punctate throughout, the apex of the fifth ventral narrowly rounded, with two small deep approximate incisures, the median tooth parallel, truncate; male not at hand. Length 15.5-16.5 mm.; width 6.0-6.6 mm. Oregon and Washington State—eight specimens. [= *californica* Cr., i. litt.]..... **crassicollis** Lec.

A—Body larger, similar in general form, sculpture and coloration, the head relatively a little smaller, with less prominent eyes, the surface more confusedly and strongly rugose, the sides of the elytra more gradually rounding and less strongly oblique in apical two-fifths, the punctured series less distinct; under surface nearly similar; legs stout. Length (♀) 17.5 mm.; width 6.9 mm. Washington State..... **hesperica** n. subsp.

Elytral apices more gradually and finely attenuate, very narrow at tip and more or less evidently though but slightly prolonged.....4

4—Upper surface black, without metallic reflection, at least in *morio*.....5

Upper surface dark brown, with feeble subcupreous or æneous lustre, the under surface rather bright cupreous.....6

5—Body very much as in *divaricata* (!) but much smaller, the upper surface confluent punctured, with only the elevated parts glossy, the lower surface bronzed-copper and glossy; mouth and antennæ bronzed, the eyes black; front sculptured as in *divaricata*; prothorax uneven, with shallow impressions and a broad dorsal channel, distinctly bisinuate at base; surface with levigated elevations; scutellum very minute, impressed; elytra divaricate, suddenly attenuated at the apices, which are rounded and each with a single ridge; surface rough, with many concatenated and levigated irregular elevations, the sides of the apices bronzed; breast channeled, the first abdominal segment less conspicuously; prosternum nearly an isosceles triangle; abdominal apex with three short teeth. Length 15.5 mm. British America (latitude 65° and in the Rocky Mts.). [= *Stenuris tenebrosa* Kirby].

tenebrosa Kirby

Body oblong, rather stout, moderately convex, dull, deep black throughout

above, deep metallic magenta with feeble medial æneous reflection beneath; head not very coarsely, densely and unevenly punctato-rugose, with an uneven transverse callous band between the eyes and two uneven basal callous areas, the eyes moderately prominent, pale in the type; prothorax four-fifths wider than long, the sides strongly and subevenly arcuate, becoming about parallel for only a very short distance at base, widest slightly before the middle, the sulcus broadly concave, closely punctate and with a small central callus, the surface from the ridges to the sides very uneven, densely punctate and rugose, strongly impressed behind the middle, the exterior callous line broadly interrupted, the lateral ridge from the basal angles to the middle strong; scutellum whitish and coriaceous in the type, transverse, semicircularly rounded behind; elytra barely at all wider than the prothorax, four-fifths longer than wide, parallel, the sides gradually rounding and feebly oblique in posterior two-fifths, becoming scarcely at all sinuate toward the narrow apices, which are truncate with rounded angles, their discal carina not extending to the tip; surface not coarsely, very densely punctured laterally, sparsely so and in clusters suturally, with even series throughout the width of very large perforate punctures, which are not at all connected in the series by any kind of a stria; elevated spots few in number, small and with very irregular outline; under surface (♂) strongly punctato-rugulose, the prosternum broad and flat, very densely, coarsely punctured, the metasternum broadly concave and also densely punctured, the first ventral simply broadly flattened medially, the middle tibiæ unmodified, the fifth ventral with a shallow, broadly sinuate apical emargination, the angles acute. Length 15.0 mm.; width 5.5 mm. Lake Superior (Whitefish Point).....**morio** n. sp.

- 6—Form oblong, attenuate behind, moderately convex, not very stout, being somewhat as in *punctulata* in general form and sculpture; head densely and confusedly punctate, with a very irregular band of low callus between the eyes, the latter rather small and scarcely at all prominent; prothorax three-fourths wider than long, the sides evenly rounded and inflated anteriorly, becoming nearly straight and parallel in almost basal third; surface with the median ridges very narrow, strong, the inclosed sulcus deep, punctate, with a small central callus, the surface thence laterally very densely and confusedly but shallowly punctate, deeply impressed behind the middle interrupting the narrow line of callus, the submarginal ridge evident but very irregular; scutellum black, dull, transverse; elytra quite obviously wider than the prothorax, twice as long as wide, the parallel sides rather rapidly rounding and thence moderately oblique, becoming very broadly but distinctly sinuate to the narrowly and evidently prolonged apices, which are narrow and rounded at tip; surface punctured nearly as in *morio* and with series of perforate coarse punctures, which are however smaller and more compressed and only very obvious suturally, the raised spots more numerous and very irregular, mostly elongate and coarsely crenated at their sides by the punctures; under surface (♀) rugulosely punctate, the densely punctate prosternum flat, the fifth ventral gradually and acutely attenuate, with the apex very narrowly, subangularly

rounded and entire; male not at hand; Length 14.4 mm.; width 5.0 mm. Michigan (at Lake Superior). [= *lacustris* Lec. (fide Crotch)].

lugubris Lec.

A—Body nearly as in *lugubris* but more prolonged and more gradually attenuate posteriorly, the head nearly similar, the prothorax shorter and more transverse, nearly twice as wide as long, almost similar in outline and sculpture but with the two median ridges less elevated, the inclosed sulcus shallower, the central callus prolonged in a fine callous line to the base; elytra with the elongate callous spots more numerous, very irregularly crenulated along their sides by the coarse punctures, which are even more conspicuous than in *lugubris* but less perforate than in *morio*, the sides posteriorly very gradually converging to the narrow rounded apices but becoming only scarcely visibly sinuate; prosternum (♂) broad, just visibly concave and very densely punctate though scarcely hairy throughout; middle tibiæ unmodified, the fifth ventral with a shallow transverse emargination. Length (♂) 15.0 mm.; width 5.25 mm. Michigan (Whitefish Point, Lake Superior)..... **austera** n. subsp.

Form and size nearly as in *punctulata*, brassy-brown above; head dull cupreous, densely rugulose, slightly indented on the front and with a transverse interrupted polished callous line between the eyes; antennæ obtusely serrate, rich cupreous; prothorax transverse, slightly emarginate at apex, feebly bisinuate at base, where it is narrower than the base of the elytra, the posterior angles acute, the sides straight near the base, strongly dilated beyond the middle, dull cupreous, densely punctured, with four longitudinal polished black lines, the middle two entire, the outer interrupted before the middle or before an oblique fossula and appearing slightly again at base; there is also a narrow polished marginal line from the tip of the hind angles to near the middle of the lateral dilatation; scutellum transverse, black; elytra brassy-brown or black, densely punctate, with series of large remote punctures and many irregular linear black polished elevations; tip short, entire, the legs and under surface cupreous, shining, rugosely punctured, the post-pectus canaliculate. Length 14.0 mm.; width 6.0 mm. Virginia. [= *consobrina* Mels.]..... **dumolini** Lap.-Gory

Form nearly similar, æneous; prothorax twice as wide as long, strongly dilated at the sides, which are rounded anteriorly, sinuate posteriorly, roughly punctate, unequal, with a short carina at the posterior angles, callous spots at apex and base and two nearly smooth costæ, the dorsal sulcus broad and deep, with a small central callus; elytra punctured, the internal striæ coarsely punctate, the alternate intervals with elevated shining spaces, many of which are connected by elevated transverse rugæ, the tips briefly prolonged, rounded; under surface bright coppery, the prosternum flat, densely punctured, the metasternum feebly sulcate, and, like the unimpressed first ventral, sparsely punctate; male with the last ventral truncato-emarginate at apex, the middle tibiæ simple; female with the fifth ventral rounded at tip. Length 13.0–16.0 mm. Maine and New York. [= *tuberculata* Lec. nec Lap.-Gory]..... **distinguenda** Lap.-Gory

- Form nearly similar, æneo-cinereous in color, the head, pronotum and elytra generally more or less suffused with green, the prothorax "more than twice as wide as long," the sides dilated and rounded, sinuate posteriorly, roughly punctate, unequal, with four shining elevated vittæ, the external subinterrupted, the dorsal sulcus "interrupted" by a "small" shining callus; elytra punctate, the internal striæ punctate, the alternate intervals with oblong shining elevated spaces, at apex slightly prolonged, the tips entire; prosternum broadly sulcate, subglabrous; male with the middle tibiæ unmodified, the fifth ventral truncato-emarginate at tip; female with the fifth ventral rounded and entire at tip. Length 15.0 mm. New York (near the city). [= *hilaris* Lec. and *manca* Lec. (fide Crotch)]. **tuberculata** Lap.-Gory
- 7—Upper surface cupreous to dark cupreous-brown in color, the elytral apices narrowly acuminate. 8
- Upper surface deep black throughout, without trace of metallic lustre, the elytral apices rather broadly obtuse. 12
- 8—Sides of the elytra rounding and rapidly converging posteriorly in about apical third. 9
- Sides very gradually and broadly rounding and very gradually converging posteriorly from a point only slightly behind the middle. 11
- 9—Sides of the prothorax but feebly converging and sinuate basally. Body more elongate, moderately convex, shining beneath, bright cupreous throughout excepting the black elevations; head very unevenly, densely punctate and rugulose, coarsely and longitudinally rugose basally, the eyes rather well developed and prominent; prothorax three-fourths wider than long, the sides broadly and obtusely prominent before the middle, strongly converging anteriorly, becoming very feebly sinuate and moderately convergent toward base; surface densely punctate laterally, the ridges broadly convex and sparsely punctate, the deep included sulcus densely punctate, completely interrupted medially, the sublateral vitta broad, widely interrupted by the deep depression, the submarginal line of very irregular ramifying callus broad and extending throughout the length; elytra but little wider than the prothorax, fully twice as long as wide, the apices slightly prolonged, broadly rounded at the tip, the sides near them distinctly sinuate; surface rather finely, very densely punctate, the coarse serial punctures distinct only near the suture, the elevations elongate, numerous and strongly convex, shorter and more ramifying laterally; under surface (♀) punctato-rugose, the prosternum very feebly and broadly concave, coarsely, densely rugose, the fifth ventral moderately acuminate, rounded at tip, the latter with two small deep nicks separated by a quadrate ligula. Length 15.0 mm.; width 5.7 mm. Ontario (Sudbury). **acerba** n. sp.
- Sides of the prothorax more strongly though broadly constricted basally and broadly sinuate, the elytral tips more truncate. 10
- 10—Body moderate in size, dark subcupreous-brown to paler cupreous in color, always brighter beneath; head with some very coarse convex rugosities throughout, separated by densely crowded punctures, the

eyes moderate, rather convex; prothorax four-fifths wider than long, nearly as in the preceding but more narrowed and sinuate basally, the median parts tumid, broadly flattened, sparsely punctate, with a small deep punctured anterior impression and another which is gradually rather broadly inflated toward base; sculpture of the depressed lateral parts unusually coarsely, densely punctate; scutellum small, black, opaque, but little wider than long; elytra four-fifths longer than wide, rather evidently wider than the prothorax, the oblique sides posteriorly becoming obviously sinuate before the very briefly prolonged apices, which are obliquely truncate, with the outer angles only narrowly rounded; surface finely, very densely punctate, with rows of coarser punctures only evident suturally, where they are rather small though becoming very large along the callous spots, the latter numerous, strong and in large part transversely anastomosing; under surface (♀) rugose, the prosternum coarsely and rugosely punctured, broadly and rather deeply concave, the somewhat narrowly rounded apex of the fifth ventral having two minute and rather well separated nicks. Length 14.4 mm.; width 5.5 mm. New York (Lake George).

chrysea Mels.

A—Nearly similar in form, size and coloration, the head rather less coarsely but very irregularly punctured and rugose, more impressed along the median line, the eyes similar and generally rather prominent; prothorax and elytra nearly similar, the former sometimes nearly twice as wide as long and with an obvious deep median sulcus, which is evidently interrupted by a rounded callus, the elytral tips somewhat more prolonged, the sinuation of the sides toward them similarly very distinct; male with the axial groove of the under surface broad, deeply concave, densely sculptured and hairy, the femora also hairy beneath, the fifth ventral rectangularly emarginate, the middle tibiæ broadly, angularly dentate internally; female with the axial sulcus narrower, feebler, more coarsely and less densely sculptured and much less hairy, the fifth ventral nearly as in *chrysea*, the median tooth very variable in width. Length (♂, ♀) 13.8–16.7 mm.; width 5.0–6.0 mm. Lake Superior (south shore from Duluth to Whitefish Point). [= *tenebrosa* Lec. et Cr., nec Kirby].

bifoveata Lec.

B—Form nearly as in *bifoveata*, except that the eyes are relatively smaller and not at all prominent, the prothorax similar but with the sculpture of the depressed lateral parts much less coarse, very dense and more even, very nearly twice as wide as long; elytra similarly less than twice as long as wide but more inflated behind the middle, the sides behind more rapidly oblique, the apices less prolonged though similarly truncate at tip, the sinuation of the sides nearly as evident and the general sculpture of the surface finer, more shallow and still more confused; under surface (♀) nearly similar but with the nicks at the apex of the fifth ventral subobsolete. Length 14.7 mm.; width 5.5 mm. Michigan **mystica** n. subsp.

Body much larger and somewhat more parallel or with relatively larger
Proc. Wash. Acad. Sci., April, 1909.

head and prothorax, obscurely bronzed, with black elevations, the under surface somewhat brighter bronze; head similarly confusedly compresso-rugose and impressed along the middle, the eyes well developed but only moderately convex; prothorax almost similar in form, with the interrupted sulcus as in *bifoveata*, the deep concavities and lateral callous areas nearly similar, the depressions rather more evenly punctate; scutellum small, opaque as usual; elytra scarcely wider than the prothorax and nearly twice as long as wide, the converging sides posteriorly becoming sinuate near the slightly prolonged apices, which are rather broader than in the preceding, arcuately truncate; surface with the series of coarse punctures more evident, though lost laterally, the callous polished spots equally or even more numerous but more irregular, the general surface decidedly more coarsely and confusedly rugose and uneven; under surface (♀) very coarsely rugose, the prosternum densely, very coarsely sculptured and nearly flat; metasternum broadly concave, the first ventral narrowly sulcate, obsoletely so posteriorly, the fifth ventral with the two deep notches more approximate than in the preceding species and subspecies. Length 17.0-19.0 mm.; width 6.25-6.9 mm. Colorado (Boulder Co.) to Montana.

montana n. sp.

11—Form narrower and more elongate than in the preceding species, rather convex, not more than feebly shining, dark coppery-red with black elevations above, brighter cupreous beneath; head coarsely, densely punctato-rugose, longitudinally impressed centrally, with two strong callous areas basally; eyes rather prominent; prothorax less transverse than in *bifoveata*, three-fourths wider than long, the sides prominent and rounded just before the middle, thence more converging and straighter to the apex and less converging and less sinuate basally than in that form, the surface similar but with the sculpture of the lateral depressions finer; elytra but slightly wider than the prothorax, fully twice as long as wide, very gradually and acutely attenuate posteriorly, the sides barely becoming at all sinuate, the apices truncate with rounded angles, the surface unusually finely, densely and evenly punctato-cribrate, the series of coarse punctures evident almost throughout, though deeper and more perforate suturally, the callous spots oblong, rather less numerous and not so strongly elevated; under surface (♀) nearly similar, the fifth ventral more acutely and gradually attenuated, with the apical notches approximate, the separating ligula narrow and parallel. Length 15.8 mm.; width 5.5 mm. Wisconsin (Bayfield),—H. F. Wickham..... **wickhami** n. sp.

12—Body moderately stout and convex, rather dull, black above, the elevations and almost the entire sutural region polished, the under surface more lustrous, rather bright cupreous throughout; head very coarsely, confusedly rugose, with a central and finely divided pit, the eyes rather small and scarcely at all prominent; prothorax four-fifths wider than long, nearly as in *bifoveata* in form and sculpture, except that instead of a median interrupted furrow, there is an anterior elongate and densely punctate pit, then a flat and sparsely punctate surface which is grad-

ually declivous posteriorly to the smaller transverse ante-scutellar cavity, the surface laterally strongly punctured and very uneven, with the outer smooth vittæ broadly interrupted by the usual large post-medial impressions; elytra but slightly wider than the prothorax, longer than in *bifoveata*, twice as long as wide, the sides similarly rapidly oblique in posterior third, becoming evidently sinuate near the broader and arcuato-truncate apices; general surface much more coarsely and unevenly punctato-rugose, the striæ rather impressed, visible throughout, coarsely punctured suturally, the elevations nearly similar, more coalescently diffused suturally, except behind the middle, the series on the sublateral interval posteriorly more than usually prominent and cariniform; under surface (♀) coarsely rugose, the prosternum broad, coarsely and rugosely sculptured, almost flat, with bluish-green lustre; metasternum deeply concave anteriorly; fifth ventral rather obtuse, the notches parallel-sided but unusually rounded, the ligula rounded at apex, parallel, the surface with more or less longitudinal rugosity and distinct indications of the usual two approximate medial ridges of preceding groups. Length 16.0 mm.; width 5.9 mm. Colorado..... **stolida** n. sp.

The synonymy in this group is almost hopelessly involved, owing to the brief and inadequate descriptions of the early authors, with wrongly quoted localities in several instances, leading thus to erroneous identifications on the part of LeConte and other subsequent writers. The trouble is accentuated by reason of the apparent rarity of many of the Atlantic coast species, so that my conclusions, as expressed above, were of necessity obtained by correlating information derived from a survey of the literature, with the assignments suggested in the Kerremans Catalogue and from a few of the published remarks of LeConte and Crotch. The species *dumolini*, *distinguenda* and *tuberculata*, of the table, are all unknown to me in nature and, in addition, much uncertainty has arisen from what appears to be an erroneous interpretation of *tenebrosa* by the authors just mentioned, who overlooked the facts, stated in the original description, that it is black and has a broad thoracic sulcus, the latter being a very important character in the present group and quite underestimated hitherto; but, at the same time, the head is said to be as in *divaricata*, that is, perhaps, without a transverse callous band; so we cannot make very positive statements concerning its identity. The name, as applied by those writers, refers to *chrysea* Mels., its subspecies and related species, forming the second section of the group, one of which was described by LeConte, under the name *bifoveata*; to this "olla-podrida" Crotch added what I hold to be the very dissimilar *crassicollis*,

having a transverse frontal callous band and broad thoracic sulcus but with the middle tibiæ of the male indeterminate, as the latter sex is unknown but apparently simple, since a California male was in all probability inadvertently named *californica* by Crotch, (Pr. Acad. Phil., 1873, p. 87). In any event *californica*; as a species, should be considered unpublished, as there is nothing written of it that could be termed a description, the only decisive character being its general stated resemblance to *tenebrosa*; but as several distinct species were confused by that author under the name *tenebrosa*, no one of which was in truth the Kirbyan species, we are unable to decide which form was alluded to in the comparison and the language is consequently ambiguous. I have assigned *californica* Cr., to *crassicollis* as a synonym and have omitted *sexualis* Cr. (l. c.) as the few words of the description do not admit of giving it a definite position among the others in the above table. Its rounded fifth ventral in the female shows that it is not in any way identical with the species described above as *crassicollis*, the abdominal apex there being distinctly tridentate, as mentioned by LeConte. My rather numerous examples of the latter all have the prothorax less transverse than stated by LeConte, and that author makes no allusion to the unusually elongate callous spots of the elytra, which are, however, noted by Crotch as a peculiarity of *sexualis*. It does not seem to be probable, in view of the localities of *crassicollis*, as mentioned by LeConte, that that species could be the same as the *montana*, of the above table, although the prothorax is shorter and relatively broader than in the form here identified as *crassicollis*.

Dumolini was described as coming from Senegal and *distinguenda* from the interior of Brazil, so that the failure of LeConte to identify them with our species was altogether pardonable, in the absence of sufficient familiarity with the general habitus of the fauna of those regions to betray to him their lack of harmony with their surroundings. I am by no means certain that *manca* Lec., is the same as *hilaris* but accept this disposition of it on the authority of Crotch; that *hilaris*, in any event, is the true *tuberculata*, of Laporte and Gory, seems to admit of very little doubt, on examining the originally published figure of the latter, and my description of *tuberculata* is taken from that of *hilaris* as given by LeConte. The latter author states that in *hilaris* and *manca*, the central thoracic callus "interrupts" the sulcus, but

the sexual characters are those of *lugubris* and some others having a broad uninterrupted sulcus.

It may be noted here that the only synonymy preserved in this paper is that referring to published species; the mere catalogue names of Melsheimer and Dejean are not given, on the ground that they ought not to be perpetuated.

Group VI—Type *americana* Hbst.

A small group resembling the preceding in the general form and rough sculpture of its members, and with the elytral apices similarly very slightly prolonged, but here the tips are deeply sinuate and bidenticulate, as in *obscura* and *pugionata*. The sexual characters of its two species differ as conspicuously as in the two sections of the *tenebrosa* group, indicating that the modifications of the intermediate tibiæ of the male in the second of the primary subdivisions of the genus is not so important as a group character as in the first. The two species may be described as follows:—

Body brassy-brown; head punctured, concave, with a transverse raised glabrous cranial line and two occipital callous spots, dull cupreous or brassy; prothorax rounded at the sides anteriorly, parallel posteriorly, unequal, roughly punctured, polished and punctate in the middle, with a vitta of three or four elevated polished black spots on each side between the middle and submargin, the vitta sometimes entire, and with a deep triangular impression in front of the scutellum, also a very shallow oblong impression behind the middle of the anterior margin, colored like the head; scutellum small, transversely linear; elytra striato-punctate, the punctures large and deeply impressed, the interstices finely chagrined, having also small and sparse sublinear polished black elevations; tips short, bidentate; under surface and legs dull cupreous, rugosely punctured, the pectus grooved, hairy; male with the middle tibiæ armed internally with a large tooth, the abdominal tip truncato-emarginate; fifth ventral of the female tridentate at tip, the middle tooth rounded apically. Length 16.0 mm.; width 6.0 mm. Pennsylvania and southward. [= *spretæ* Lap.-Gory, *impressifrons* Mels. and *asperata* Lec. nec Lap.-Gory].....**americana** Hbst.

Body oblong-suboval, moderately convex, polished and sparsely pubescent, obscure æneous to viridi-æneous, bronzed beneath; head coarsely, very irregularly sculptured, impressed centrally before a transverse interocular line of callous areas, also with two approximate longitudinal occipital callous spots, the eyes only moderately convex; prothorax nearly twice as wide as long, the sides broadly rounded and moderately inflated, becoming not very converging and then parallel basally; surface very

unequal, the median line not or very feebly impressed but more distinctly so and densely punctate anteriorly and gradually more deeply to a broad pit basally, laterally very roughly, densely and coarsely punctate, with a sublateral callous vitta subinterrupted by a post-median depression and with numerous irregular callosities along the side margins; elytra but little wider than the prothorax, twice as long as wide, parallel, the sides gradually rounding and oblique in scarcely more than apical third, becoming distinctly and rather abruptly sinuate at the apices, which are slightly prolonged, the tips deeply sinuate and acutely bispiculose; surface extremely rough and irregularly diversified with moderately coarsely and closely punctate depressed areas, large polished elevated anastomosing spots and larger serial punctures; along the side margins there are small oval areas of very dense white pubescence; under surface rugulose, not coarsely so on the abdomen, the axial line broadly smooth; male with the middle tibiae unmodified, the prosternum narrowly and feebly impressed and punctured but not very pubescent along the middle, the metasternum flat, feebly, narrowly impressed along the median line, the fifth ventral rectangularly emarginate at apex, the notch with a short and very broad truncate lobe; female with a small sinus at the tip of the fifth ventral, from which projects a long slender truncate tooth, the surface of the segment with two vestigial and inconstant medial ridges. Length 13.0-15.8 mm.; width 4.6-5.8 mm. Massachusetts (Brookline), New York and Indiana. [= *asperata* Lap.-Gory, *molitor* Mels. and *spreti* Lec. nec Lap.-Gory]. **scobina** Chev.

The identification of *scobina* with *asperata* (Lap.-Gory nec Lec.), is given on the authority of the Kerremans Catalogue and that of *americana* Hbst., with *spreti* (Lap.-Gory nec Lec.) rests upon the conclusion of LeConte that, by the terms of its original description, it seems to resemble that species more than any other; but this surmise was marked as doubtful by that author. If it is not *spreti* it is most probably *chrysea* Mels., of the preceding group, but I have been unable to consult the original description, which, according to LeConte, is very ambiguous. At any rate some provision has to be made for it, as it was one of the first of our species to be made known in the literature of the subject and I adopt *spreti* as its synonym, because the weight of evidence seems to show that this disposition is most likely to be correct. The species is apparently rare and my description is compiled from those of Melsheimer and LeConte. *Scobina*, on the other hand, is rather abundant and my collection contains a good series. It seems to me unnecessary to propose two groups for these species, as suggested by LeConte, for they are apparently very much alike in everything but the male sexual characters. Crotch

gives no useful hints and does not even mention the names *scobina* and *americana* in his sketch of the genus.

Group VII—Type *pectorosa* Lec.

There is very little to be said at present concerning this group, as its single species is wholly unknown to me. The description given by LeConte may be stated as follows:—

Body blackish-æneous; prothorax more than twice as wide as long, the sides strongly dilated and rounded, briefly sinuate posteriorly, unequal, coarsely punctate, bicostate, the dorsal sulcus large; elytra rugose and densely punctate, the striæ foveately punctate, the alternate intervals with somewhat elevated smooth spaces, which are rather sparse, pronouncedly prolonged posteriorly and rounded at tip; under surface dark brassy, very coarsely punctured; prosternum with two smooth, strongly elevated costæ, the pectoral groove broad, deep and densely punctured; metasternum almost as strongly sulcate as the prosternum, sparsely punctured at the middle; first ventral broadly sulcate, sparsely punctured medially, the fifth with two narrow costæ, between which at the tip, is a very short and smaller one; the apex is truncate in the male and marked with four deep apical foveæ; middle tibiæ not modified in the male. Length 16.0 mm. Oregon..... **pectorosa** Lec.

Crotch gives no additional information concerning the unique male type of this species but places it, in his table, under the heading: "Apex of the elytra not produced, entire."

Group VIII—Type *mutica* Lec.

To this group also belongs a single species, represented thus far by a unique male specimen; it is described as follows:—

Form rather elongate, brassy-gray in color, the prothorax one-half wider than long, strongly narrowed before the middle and sinuate at the sides, strongly and, laterally, confluent punctate, dorsally canaliculate; elytra punctate, the internal striæ distinct, the intervals variegated with obscure spaces, the internal polished and sparsely punctate, posteriorly obliquely attenuate, not at all prolonged, the tips arcuately truncate; prosternum convex, sparsely punctate; metasternum and first ventral sulcate; male with the fifth ventral rectangularly emarginate, the notch with a short and broad, rectilinearly truncate tooth, the intermediate tibiæ straight and unmodified. Length 16.0 mm. New York (Brooklyn)..... **mutica** Lec.

This species seems to have the general facies of *lurida*, in form and sculpture, but differs profoundly in its convex prosternum and entire elytral tips.

Pæcilonota Esch.

The species of this genus are much less numerous than those of *Dicerca* and present a distinctly different appearance, due to the more even and less convex surface, more regular and pronounced elytral striation and longer and more slender antennæ, especially noticeable in the joints following the second and differing in this way from *Lampra*, where the antennæ are very much as in *Dicerca*. The outer joints in *Pæcilonota* are, as in *Dicerca*, wholly devoid of dense punctures, but the sensory fossa is larger, oval and situated on the inner side of the apex of the serrature. In the present genus the median line of the pronotum is not impressed as in *Dicerca*, even near the apex, but is narrowly flattened, slightly elevated and abruptly impunctate; the scutellum is much larger, very transverse, strongly trapezoidal, with the hind angles more or less acutely prominent, the legs more slender and the basal joint of the hind tarsi more elongate. The elytral apices are generally rather abruptly, though briefly and narrowly, prolonged, the slender tips entire or sinuate and with denticulate angles, but this formation is far less constant within specific limits than in *Dicerca*, so that the nature of the elytral apices is not so trustworthy a criterion in the characterization of species, except when taken within rather wide limits. This plasticity in the form of the elytral tips is well illustrated by a specimen of *cupripes* before me, which, though a malformation, may have its origin partially in the general lack of stability of this part of the elytra. As a rule, the elytral tips of *cupripes* are simply rectilinearly truncate, but in the example alluded to the left elytron is normal, with its tip narrow and truncate, while the right elytron is abbreviated, not extending posteriorly as far as the left and has its tip broader, deeply and evenly sinuate and with acutely dentiform angles; this specimen is apparently not in the least abnormal otherwise.

One of the more pronounced characters distinguishing *Pæcilonota* from the general type form in *Dicerca*, resides in the prosternum, which in the former is broad and feebly, evenly convex as a rule, though depressed along the elevated side margins, and in this it resembles *Lampra*, but whether *Dicerca mutica* has a prosternum in any way similar or not, I am unable to state at present. The sexual characters are not very marked, the notch or sinus at the apex of the fifth ven-

tral usually being of similar nature in both sexes, and not medially dentate in either, but it is broader in the male in the majority of species, and the latter sex generally has the sterna more closely punctate and conspicuously pubescent. The known species may be outlined as follows:—

Abdominal apex deeply sinuato-emarginate in both sexes.....2

Abdominal apex deeply sinuate in the male, very feebly so in the female...4

Abdominal apex rounded.....5

2—Elytral apices very slender, evidently prolonged, the tips more or less sinuate and bidenticulate. Form narrowly oblong, more or less inflated posteriorly, obscure bronze above, with the elytra strongly and conspicuously cupreous at apex, the under surface cupreous, the legs bronzed with greenish-blue tarsi; head closely punctate, with large callous spaces medially toward base, the epistoma and labrum blue or green, the antennæ bluish; prothorax three-fifths wider than long, broadly rounded at the sides, gradually narrowed anteriorly, the apex subtruncate and evidently bisinuate; surface coarsely, closely punctured and rugose, with the smooth median line entire; scutellum cupreous, more or less impressed medially; elytra at base but little wider than the prothorax, though notably so behind the middle, the sides rounding and rapidly converging behind, becoming sinuate at the short and slender, somewhat divaricate apices; surface with impressed and closely punctured striæ, the intervals feebly convex, closely punctured and with irregular and black, smooth but not evidently more elevated spots; terminal notch of the abdomen (♀) but little wider than deep, the sterna sparsely punctate and subglabrous, the notch (♂) twice as wide but of the same depth, the sterna finely, closely punctate and with long conspicuous pubescence, the prosternum not so closely punctured as the metasternum, and broadly, feebly convex, though not by any means so strongly so as in the female. Length 11.4–15.2 mm.; width 4.0–5.7 mm. Canada, New York and (?) Texas.

erecta Lap.-Gory

Elytral apices not so slender, briefly prolonged, the tips bidentate. Body brassy-brown above; head slightly impressed, rugosely punctured; eyes yellowish-brown; prothorax equal, closely, rugosely punctured, the medial space glossy black, each side of which at the anterior margin there is a small black polished spot and a similar one at each side at the posterior margin; posterior angles right; scutellum transverse, concave; elytra punctato-striate with the first four striæ entire, the intervals rugosely punctured and with rows of oblong-quadrate glossy [black] spots, the lateral submargins transversely rugulose and with irregular elevated glossy spots and short lines; legs and under surface dull cupreous, rugosely punctured, the pectus [metasternum?] slightly canaliculate. Length 14.0 mm.; width 5.5 mm. Virginia. [= *Dicerca ferrea* Mels.]..... **ferrea** Mels.

Elytral apices entire, not sinuate or bidenticulate 3

3—Body elongate, parallel, but feebly inflated posteriorly, not very convex, obscure bronze, the apex but feebly cuprascent-red; under surface brighter bronzy-cupreous, the legs bronze, with the tarsi green-blue; head coarsely, confusedly punctato-rugose, broadly concave anteriorly, the median line basally elevated and with a fine median stria; antennæ deep greenish-blue; prothorax nearly twice as wide as long, widest behind the middle, the sides evenly rounded, becoming gradually very convergent and straighter anteriorly, the apex broadly, subevenly sinuate; surface coarsely, closely punctate, with very large irregular callous spots scattered throughout, the median smooth line slightly elevated and entire; elytra evidently wider than the prothorax and five times as long, more than twice as long as wide, the sides very gradually rounding and then rather rapidly converging in posterior two-fifths, becoming sinuate before the slightly prolonged and divaricate apices, the tips very much and rapidly narrowed from within by the separating notch and narrowly truncate; surface punctato-striate, the striæ obsolete laterally, the intervals punctate and with small irregular smooth black and very feebly elevated spots; under surface (♀) densely, rugosely punctate laterally, smooth and sparsely but strongly punctate medially, the prosternum convex between the lateral sulci, the fifth ventral with a small, evenly rounded sinus which is twice as wide as deep. Length 14.5 mm.; width 5.0 mm. Colorado; Missouri Valley,—Say. [= *Buprestis cyanipes* Say] **cyanipes** Say

Body much less elongate, moderately convex, more blackish, with the smaller depressed areas gray-bronze above, the posterior extremity but faintly cuprascent and very near the tips only; under surface more shining, cupreous, the legs and tarsi bright bronze, the latter with a very faint greenish lustre except basally; head densely, rugosely punctate, with a large and deep rounded anterior depression, the median parts thence to the base strongly, broadly elevated, smooth and with a very coarse impressed median stria; antennæ obscure bronze; prothorax parallel, widest at the middle, the sides evenly and rather strongly arcuate, equally converging apically and basally, the apex feebly, subevenly sinuate; surface rather uneven, more or less impressed posteriorly near the sides, very coarsely, densely punctate and rugose, the median polished line sharply defined and entire; scutellum shorter, more transverse and less narrowed basally than usual, dull blackish; elytra obviously wider than the prothorax, but feebly inflated posteriorly, twice as long as wide, the sides gradually rounding and converging posteriorly, becoming only feebly sinuate near the apices, which are scarcely at all prolonged and but little narrowed by the very small separating notch, the tips rather broad and truncate; surface much more rugose than usual, the stria intervals more convex and prominent, the black polished elevated spots much more extensive than the small and depressed bronze spots, which are rather coarsely punctate; under surface (♂) rugulose laterally, the median parts pubescent, the prosternum broad, rather closely punctate throughout and flat, the metasternum impressed along the middle, the fifth ventral with a large abrupt sinus

between the acute apices twice as wide as deep. Length 12.6-14.0 mm.; width 4.7-5.2 mm. Wisconsin (Bayfield),—H. F. Wickham.
eupripes n. sp.

Body larger and stouter, moderately convex, much inflated posteriorly, dull cupreous and black above, with the apices a little more cupreous, the under surface obscure purplish-bronze, the legs cupreous, the tarsi subcupreous with strong blue-green metallic lustre which is fainter basally; head very small, densely, rugosely punctate, with a moderate and rather indefinite anterior concavity, the callous basal median parts low and only extremely finely striate along the middle; antennæ bluish-bronze; prothorax much more than twice as wide as the head, fully twice as wide as long, widest scarcely behind the middle, the sides rounded, gradually strongly converging anteriorly, the apex bisinuate, the angles anteriorly prominent; surface coarsely and unevenly punctato-rugose, strongly impressed just behind the middle near each side, the polished median line entire; scutellum cupreous, strongly trapezoidal as usual, impressed medially; elytra wider than the prothorax, the sides posteriorly rapidly converging from the rounded post-median inflation, becoming only very feebly sinuate for a short distance before the apices, which are barely at all prolonged, the tips narrowly truncate and with rounded external angles; surface strongly, very irregularly punctate, with rather fine striæ, the intervals feebly convex, with oblong polished black spots which are much confused as a rule; under surface (♀) rugose laterally and smooth and sparsely punctured medially as usual, the prosternum convex and almost impunctate between the sulci, the fifth ventral with a small deep rounded notch. Length 16.0 mm.; width 5.9-6.2 mm. New Mexico..... **parvieps** n. sp.

4—Form oblong, stouter than in the preceding species, dark bronzy-cupreous above, the posterior extremity without the faintest tendency to become cupreous, the under surface and legs brighter bronze, the tarsi very dark metallic green-blue to indigo-black; head less coarsely and more evenly, densely punctato-rugulose, broadly concave anteriorly, the median callous part at base with a strong though fine stria; antennæ blue-blackish; prothorax two-thirds wider than long, the sides obtusely subangulate at or just behind the middle, parallel thence to the base and strongly converging and straighter to the apex, which is broadly sinuate; surface coarsely, densely and more evenly punctate, with a broad and uneven sublateral callous vitta and a very irregular callous area medially near each side, the median smooth line distinct, entire; scutellum trapezoidal, metallic, impressed medially; elytra scarcely twice as long as wide, slightly inflated post-medially, the sides there rounding, becoming oblique, then feebly sinuate to the apices, which are not evidently prolonged, the tips rather broad, sinuato-truncate, with rather acute angles; surface with the striæ fine and closely, finely punctate, scarcely impressed, the intervals flat, closely punctate, coarsely and transversely, subconfluently so laterally, the black callous spots numerous but small and very irregular; under surface (♀) rugose laterally, broadly smooth medially, the prosternum very broad,

gently, evenly convex, with sparse though distinct punctures, the fifth ventral with the somewhat narrow tip very feebly sinuato-truncate. Length 14.5-18.0 mm.; width 5.6-6.9 mm. Kansas. [= *Buprestis costicollis* Lap.-Gory] **thureura** Say

- 5—Form nearly similar to the preceding, the size very much smaller, cupreo-æneous; prothorax subtransverse, narrowed from the base anteriorly, the sides broadly rounded, the surface roughly punctate, the median vitta rather wide, smooth, with another not very distinct at each side; elytra striate, in general densely punctured, variegated with obscure smooth spots, the apices truncate and slightly bidenticulate; abdomen (♀) with the fifth ventral entire and rounded at apex, the prosternum subglabrous. Length 12.0 mm. Maryland (Baltimore) .. **debilis** Lec.

There has been a tendency among various recent authors to suppress both *erecta* and *debilis*, but I do not hold this to be justifiable; the former is the widely diffused eastern form, with brilliantly cupreous apex of the elytra and blue tarsi, usually identified in cabinets as *cyanipes*, which however is a very different and far western species, probably rather rare in collections.

Anataxis n. gen.

Although the prosternum in this genus is almost exactly as in *Pæcilonota*,—broadly convex between the narrow lateral sulci,—both the metasternum and first ventral are broadly and evenly convex, and, that we have here a remarkably isolated type, not at all closely related to anything that precedes, is amply shown in addition by the transversely parallel hind coxæ, parallel inner margins of the eyes and by the antennal structure. The body is cuneiform, convex and not unlike *Acmaodera* in general outline, the evenly convex front feebly impressed medially, the epistoma depressed and sinuato-truncate, the labrum short, sinuate and closely, stiffly pubescent, the mentum transverse, corneous, metallic and medially produced in a narrowly rounded prominence at apex and the maxillary palpi slender and moderate in length. The antennæ are short, compact, somewhat as in *Dicerca* but with the third joint longer than the second or fourth, the outer joints transversely and obtusely serriform, their outer sides smooth but having each a very large oval sensory intero-apical fossa, and another, smaller and transversely oval, near the base of the joint, with a number of coarse sensitive punctures between; they are inserted in small and widely separated foveæ, which have their upper margins slightly prominent. The prothorax is evenly convex, excepting a feeble

impression along the middle near the base, the scutellum small, slightly transverse, flat and rounded behind, the elytra cribrate and with some fine and only slightly apparent, somewhat more convex punctureless lines, the sides posteriorly serrulate, the tips not at all prolonged, rather narrowly rounding to the suture and serrulate. The legs are short and slender, the hind tarsi short, slender, with the basal joint but slightly elongate and the first ventral suture is straight and very fine, almost obliterated in the middle.

It is of course within the most evident possibility, that in placing *Anataxis* here, the genus may be unwarrantably removed from some of the preceding genera, with which it may in reality and despite its very different appearance be more closely related. This surmise occurs on considering the actual outline of the compact outer antennal joints, the latter having a feebly defined truncature of the lower edge, which posteriorly thereto converges much more rapidly to the base, in conjunction with the complex system of sensory fossæ, which might suggest that it be placed in closer proximity to *Psiloptera*. In considering the figure of *Anthaxia gigas*, the type of *Agæocera* Wat., as given by Laporte and Gory, it is observed to differ in several external characters, such as the four pronounced costæ of each elytron, the triple longitudinal impression of the pronotum and the apparent absence of serrulation of the postero-lateral margins of the elytra. Making due allowance for inaccuracy of drawing, it seems to me probable that these marked external incongruities betoken other differences in the organs of the head and structure of the under surface, which I am unable to express at present, but which may be even more significant. The single species of *Anataxis* may be described as follows:—

Body moderately slender, convex, rather shining, bright green in color throughout, the under surface more polished and partially cuprascent, glabrous; head rather finely, closely and evenly punctate, the eyes well developed but not prominent, the antennæ but little longer than the head, black with feeble greenish lustre; prothorax two-thirds wider than long, the sides broadly, evenly rounding and converging anteriorly, becoming very gradually parallel basally, the base broadly bisinuate, the apex very obsoletely bisinuate truncate; surface rather finely but strongly, loosely punctate, gradually more coarsely, densely so laterally, even, the feeble impression behind the centre ending, at some distance before the middle of the base, in a small punctiform fovea, the bottom of the impression finely striiform near the puncture;

elytra at base as wide as the thoracic base to somewhat narrower, between three and four times as long as the prothorax, the sides straight and scarcely visibly converging to apical two-fifths, there very gradually rounding and arcuately converging to the very narrow stronger arcuation extending to the sutural angles; surface irregularly but subequally cribrate, with rather small and deep punctures, nearly wanting in two broader, feebly convex lines on each near the suture, dense laterally, the submarginal prominent ridge rather evident; under surface finely, more feebly punctate, rather closely so laterally, the surface smooth and convex, the fifth ventral transversely truncate at the rather narrow apex, with the ends of the truncature minutely dentiform, the edge impunctate to a fine transverse striiform parallel line a short distance therefrom, apparently not differing noticeably in the two sexes. Length 9.0-12.2 mm.; width 3.0-4.3 mm. Texas (El Paso). [= *Halectia gentilis* Horn and *Agæocera gentilis* Waterh.]. **gentilis** Horn

The male is smaller and narrower than the female, if I have properly identified the sexes, but does not differ otherwise, except in having the prothorax more parallel and less narrowed anteriorly. The single male before me has a small irregular depression at each side of the median line near anterior fourth, but these impressions are probably adventitious.

Nanularia n. gen.

This genus and the two following form a group, altogether distinct from any of those that precede in having the mesosternum separated from the metasternum by a deep cleft; there is, however, little or no harmony between these three genera in other structural characters, and I am unable at present to assign a definite value to the character as a means of dividing the entire family into lesser subdivisions. The body in *Nanularia* is small, convex and deep, not unlike *Anataxis* in this respect, as well as in sculpture, except that the outline is parallel and not cuneate. The head is relatively large and but little narrower than the prothorax, the front even, but with a narrowly impressed and subentire median line, the eyes moderate, with their inner margins converging upward though very feebly, the epistoma not depressed, broadly, feebly sinuate, the labrum short, subcoriaceous, feebly sinuate, sparsely punctate and with short stiff sparse hairs, the mentum short, very transverse and very broadly, parabolically rounded, the palpi rather slender. The antennæ are inserted in small and widely separated foveæ, each margined above by a small inconspicuous oblique ridge, the ridges tending however to join each

other transversely, especially in the male; in the female there is only a small median part of the transverse ridge visible; they are short and compact but not very stout, the third joint elongate, the outer joints including the fourth, serriform but unusually convex and not much compressed, with their lower margins obliquely though somewhat vaguely and narrowly truncate, then very rapidly converging to the base, their inferior surface entirely opaque from very dense punctuation and each with a distinct circular sensory fossa on the oblique apical surface, though more visible from within; the last joint in both sexes is strongly and narrowly prolonged on the inner side, forming a narrow process nearly as in *Gyascutus*. The pronotum is almost even, the scutellum small but distinct, rounded and medially foveate, the elytra cribrate, imperfectly and very finely striate, not distinctly serrate at the sides and with the apices not at all prolonged and narrowly truncate. The under surface is strongly convex, the prosternum narrow, feebly convex, not sulcate at each side and densely sculptured throughout, the first ventral suture perfectly rectilinear, fine but rather distinct, the first segment not free, the last narrowly and evenly rounded at tip, more broadly in the male. The legs are short and slender, the hind tarsi three-fourths as long as the tibiæ, slender, with the basal joint but slightly elongate, although nearly as long as the next two combined. The single type known to me may be described as follows:—

Body parallel, subcylindric, scarcely shining, obscure cupreous to blackish-brown, the female subglabrous, the male with short though rather numerous hairs beneath and on the head, the latter evenly and deeply, rather densely cribrate, more rugose in the male, the antennæ about a third longer than the head; prothorax a third wider than long, subparallel, the sides feebly rounded anteriorly, becoming very broadly, feebly sinuate posteriorly, the apex but little narrower than the base, broadly and evenly arcuato-truncate, the base broadly, transversely lobed medially, sinuate laterally, the surface gradually very deeply declivious laterally, somewhat coarsely, deeply and closely cribrate throughout, very feebly impressed subapically along the median line, the entire posterior dorsal part of the surface very feebly impressed, so that the margin at the median lobe is turned slightly upward and is less punctate, sometimes also having a small sinus at the scutellum; elytra but barely wider than the prothorax and about three times as long, the sides parallel to apical third, there broadly rounding and gradually arcuately converging to the apical truncature, which is wider in the female; surface subevenly and closely cribrate, the punctures not as large as those of the pronotum, also having fine and unimpressed

striae arranged in pairs and more or less evident throughout the width; under surface rather finely but deeply, closely cribrate, the abdomen very finely punctate, sloping upward posteriorly. Length 7.9-9.8 mm.; width 2.5-3.1 mm. California (San Diego Co.,—Poway).

cupreofusca n. sp.

The following species is provisionally included:—

Form oblong, subcylindric, gradually narrowed posteriorly, color bronze with slight æneo-cupreous lustre; front slightly convex, densely and coarsely punctured; epistoma broadly emarginate, the antennal ridges short; antennæ shorter than the head and prothorax, serrate, the terminal joint obtuse at tip; prothorax slightly broader than long, cylindrical, the sides slightly arcuate in front, feebly sinuate at basal half, which is subacutely margined, the hind angles subacute posteriorly; apex truncate, the base bisinuate and at middle subtruncate; surface moderately convex, coarsely and deeply but not densely punctate; scutellum semicircular, nearly smooth; elytra subcylindric, parallel, gradually narrowed at apical third, the margin near the apex finely serrate, the apex obtuse; surface densely punctate and with traces of striae at the sides and apex; under surface coarsely but not densely punctured and with a few short cinereous hairs; posterior tarsi with the first joint feebly compressed and not greatly longer than the second. Length 9.0-12.0 mm. California (San Joaquin Valley). [= *Gyascutus californicus* Horn]..... **californica** Horn

Among the remarks following the description of *californica*, Dr. Horn states, in referring to the species of *Gyascutus*, that "traces of a false joint at the end of the eleventh occur in the antennæ, excepting in *californicus* and *sphenicus*, in which the eleventh joint is simply obtuse as in *Psiloptera*." The form of the eleventh joint in *californica* must therefore depart very radically from that characterizing *cupreofusca*, and the allusion to an obtuse eleventh joint in *sphenicus* (*Hippomelas*) refers, as I have stated under that genus, to the male alone.

Cinyra Lap.-Gory.

The type of this genus is stated, in the preceding table of genera, to be the Brazilian *Buprestis elongata*, of Laporte and Gory, but the diagnosis there given is drawn from our small aberrant *Dicerca gracilipes*, of Melsheimer, or more accurately from a very similar species described below under the name *macilenta*, and the corresponding characters of *elongata* are unknown to me. So there is a possibility, which amounts almost to a certainty, when we consider the very different style of sculpture of *gracilipes*, that the latter may constitute a different genus from the true *Cinyra*, where it was first placed by LeConte;

in the Kerremans Catalogue it appears under the genus *Halecia*. I will therefore assign our species to the following subgenus of *Cinyra*:—

Body slender, the elytra roughly and unevenly sculptured, having large, indefinitely limited and feebly depressed areolæ of finer closer punctation, the sides posteriorly without trace of serrulation and perfectly even; posterior tarsi with the pads of the first three joints small and depending vertically from the under part of the extreme apices of the joints, the fourth gradually oblique and lamellate under the fifth, impressed along the median part of the surface and evenly sinuato-truncate at tip. [Type *Dicerca gracilipes* Mels.]. **Spectralia** n. subgen.

The type is rather rare and I have in my collection but a single example of the subgenus, which however comes so far from satisfying the original diagnosis of Melsheimer, that it seems necessary to regard it as a different though closely allied species, of which the description appended below is made unusually complete, in order to bring out possible generic as well as specific characters. The head is as wide as the thoracic apex, vertical, the front flat, the epistoma not depressed, deeply and parabolically sinuate at apex, the labrum corneous, sinuate and with an abrupt pale coriaceous margin at apex, the mentum short, wholly corneous and roughly sculptured, truncate and trapezoidal, the palpi slender, the eyes with their inner margins evidently converging upward. The antennæ are somewhat as in *Buprestis* though still more slender and elongate, inserted in small and widely separated foramina, which are concealed from above by the sharply defined and somewhat prominent though porrect frontal margins above them. The prosternum is moderately wide, flat or very feebly convex, having throughout a very fine marginal bead; it is abruptly and obliquely narrowed posteriorly to a rather narrow apex, which does not quite attain the rounded apex of the metasternum in the wide cleft between the lobes of the mesosternum. The first ventral segment is fully as long as the next two combined, with the suture fine but distinct and rectilinear. The descriptions follow:—

Form slender, subcylindric, dark brassy-brown above; head bright cupreous, roughly chagrined, with a transverse arcuate glossy line between the eyes, which are black-brown; prothorax transverse, with the sides rectilinear, the apex truncate and the base bisinuate; surface with an obvious entire furrow, rugosely punctate; scutellum obtuse, triangular; elytra faintly striate, with about four or five longitudinal raised lines, the interstices rugose, punctulate; surface with a distinct cupreous impressed spot a little before the middle and an obsolete double one

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behind the middle; sides parallel from the base to the apical curve, the sides posteriorly not serrate, the tips much narrowed, feebly bidentate; feet and under surface bright cupreous, rugosely punctate; tibiæ long, slender; venter almost rounded at tip; pectus feebly canaliculate. Length 10.0 mm.; width 3.5 mm. Pennsylvania. [= *Dicerca gracilipes* Mels.]..... **gracilipes** Mels.

Form slender, moderately convex, fusoid, above slightly shining, blackish with feeble cupreous reflections, except the elytral foveolæ which are greenish, beneath more cupreous and less glabrous, each puncture having a small decumbent hair; head nearly as wide as the thoracic apex, obscure in color, the front flat, rather finely, densely, almost uniformly punctato-rugulose and evidently pubescent, without trace of transverse callus but with the median line slightly elevated and smooth near the centre; antennæ piceous, with slight cupreous lustre except apically, very slender, extending somewhat beyond the thoracic base; eyes well developed, rather convex and prominent; epistoma cupreous, the sinus small, deep, parabolic; prothorax widest at base, nearly one-half wider than long, feebly trapezoidal, the sides very feebly arcuate, becoming straight basally, the angles not at all everted; apex broadly sinuate, the base arcuate, becoming feebly sinuate near the sides; surface strongly, rather sparsely and subevenly punctate medially, with a deep entire median sulcus which is broadly impressed posteriorly, becoming more acute anteriorly, and another, near each side, very feeble anteriorly but becoming deep at base, concave and densely punctate and bounded externally by a tumid and less punctured ridge, which is obsolescent anteriorly; scutellum small, flat, opaque, blackish; elytra but little wider than the prothorax and about four times as long, separated along the inner sides in the type from basal fifth to the apex; sides parallel and nearly straight for three-fifths, then very gradually rounded and convergent, even and without trace of serrulation to the narrowly transverse sinuato-truncate apices, which are feebly bispiculose; surface with rather coarse, uneven interrupted striæ, except laterally, with the narrow intervals alternately a little more prominent, strongly so apically, very unevenly but closely, rather coarsely punctate and rugulose, more sparsely and coarsely on the general surface but more densely and finely in the shallow and very uneven vague depressions, of which there is one very large and obliquely transverse before the middle and some smaller from the middle to the apex, the small punctate patches well separated along the smoother sutural intervals much as in *Dicerca*; prosternum perfectly flat, transversely truncate anteriorly, rather coarsely, closely and evenly punctured throughout; entire metasternum equally densely and uniformly but less coarsely punctate, the abdomen much more sparsely, especially toward the middle, and more polished and rather narrowly sinuato-truncate apically in the type; legs long, very slender, the basal joint of the hind tarsi as long as the last three combined. Length 10.5 mm.; width 3.2 mm. Texas. **maellenta** n. sp.

The description of *gracilipes* is drawn directly from the originally

published characters. It is stated by LeConte that the anterior tibiæ of the male are serrate within; in the type of *macilenta* the anterior tibiæ are almost straight, with the inner margin very finely spiculate throughout the length; the middle tibiæ are longer, feebly arcuate and also finely and closely but less evidently spiculate throughout the length. The hind coxæ are rapidly dilated inwardly as usual.

Mr. Chas. Schaeffer has lately (Journ. N. Y. Ent. Soc., 1904, p. 205) described a *Cinyra prosternalis* from Texas, and, still more recently, *Cinyra purpurascens*, from Lower California (Bull. Br. Inst., I, p. 127, 1905). Without being able to decide upon the proper systematic position of these species, it may be safely stated that neither of them can be assigned to *Spectralia*, the first differing in its feebly and apparently more broadly sinuate epistoma, obsolescent thoracic sulcus and very different elytral sculpture, and the latter because of its very short elytra, absence of thoracic sulcus, shorter hind tarsi, differently sculptured abdomen and many other important characters. The antennæ in neither of these species is so described as to afford a clue as to whether they belong in this vicinity, or are more closely allied to *Anataxis* or *Nanularia*. It is probable that they are not properly assignable to *Cinyra*, even in its broadest sense.

Trachykele Mars.

The species of this genus recently formed the subject of a review by Mr. H. C. Fall (Ent. News, 1906, p. 160), in which the characters of the four known species were given in considerable detail, but no mention was made of the generic characters, nor was any opinion advanced as to the relationships of the genus or its proper position in the family. The separation of the meso- and metasterna by a cleft-like suture, is apparently quite unusual in this family and present only in *Nanularia*, *Cinyra* and *Trachykele*, of those genera discussed in the present paper, but, because of my insufficient knowledge of exotic types, I am unable to put forward any useful suggestions as to the relative significance of this character in a general analysis of the family. In any event, however, it clearly isolates these three genera from those above them in the table given at the beginning of this paper, and there seems to be, besides, a pronounced tendency in them toward a more mobile connection between the first and second abdominal segments, this feature being especially pronounced in *Trachykele*,

where the first segment appears to be virtually free, the first suture not differing to external view from the others.

The species are extremely rare in collections but, in greater likelihood than actual rarity, perhaps, they may be abundant only at certain very short periods of the year or in relatively few limited localities, like *Buprestis confluenta* and some others of this family, and as also frequently noted in the Cerambycidae. The genus was consequently wholly unknown to me in nature, until Prof. Wickham very kindly lent me the only example that he had secured during many years of skillful collecting. This specimen has served as the type of the diagnosis given in the table of genera on p. 53; it appears to satisfy the general characters of *opulenta* Fall, which is closely allied to *blondeli* Mars., the true type of *Trachykele*, and was taken at Nanaimo, Vancouver Island. It is glabrous, very densely and rather finely cribrate and bright green throughout, the elytra with a few small and irregular black spots. These spots are observed under higher power of amplification to be due, not to pubescence, but to actual blackness of the integument, accompanied by a strong granulato-reticulation of the surface, which gives them their velvety appearance.